RISK ASSESSMENT AND COMMUNITY MANAGEMENT: THE RELATIONSHIP BETWEEN IMPLEMENTATION QUALITY AND RECIDIVISM

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ABSTRACT

Risk assessment and case management are two important aspects of young offender corrections and reintegration. Evaluating the extent to which case management practices are guided by risk assessment is important because the impact of the risk assessment instrument cannot be adequately assessed if the instrument is not being applied as fully intended. Unfortunately, little research has been devoted to examining the use of risk/need instruments in offender case management. The purpose of the present study was to investigate the link between risk assessment and community case management of young offenders in Saskatchewan and whether adherence to the principles of risk, need, and responsivity vis-à-vis the Level of Service Inventory – Saskatchewan Youth Edition (LSI-SK; Andrews, Bonta, & Wormith, 2001) is related to recidivism.

Risk assessment and case management data were collected for a total sample of 193 young offenders who were supervised by youth workers from the Saskatoon and Regina probation offices. The sample was followed up for an average of 644 days. The overall recidivism rate was 62.2% with no significant difference in recidivism according to office of supervision, sex, or ethnicity.

The LSI-SK total and seven of the subscale scores were significantly, positively correlated with recidivism. Results also indicate that the LSI-SK was being used to guide supervision intensity as well as interventions. Moreover, the present study found that adherence to the need principle was associated with reductions in recidivism. Appropriateness (defined as the presence of interventions for identified needs or absence of interventions for areas that were not identified as needs) correlated significantly with recidivism (r = - .214). Appropriateness was found to be a significant predictor of

recidivism after controlling for ethnicity and length of follow up. For every appropriate intervention listed on the case plan, the likelihood of recidivism was reduced by 24%. In terms of inappropriate treatment, under treatment was significantly correlated with recidivism (r = .283) but over treatment was not. Under treatment was a significant predictor of recidivism after controlling for ethnicity and length of follow up. For every identified need that did not have a corresponding intervention, the risk of recidivism increased by 91%. Implications for case management and direction for future research are discussed.

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CHAPTER 1
INTRODUCTION

Risk assessment has evolved from being exclusively reliant on professional judgment (first generation risk assessment) to use of static (second generation) and dynamic risk factors (third generation) to predict recidivism (Bonta, 1996) to the present day assessments that emphasize the link between risk assessment and service delivery (fourth generation; Andrews, Bonta, & Wormith, 2006). Fourth generation risk/need assessment instruments identify offender risk level, criminogenic needs, and responsivity factors, and direct service delivery and case management to target the issues identified during assessment. One such tool is the Level of Service Inventory – Saskatchewan Youth Edition (LSI-SK; Andrews, Bonta, & Wormith, 2001). The promise of fourth generation risk assessment instruments, however, can only be realized if they are implemented as designed. Unfortunately, the issue of implementation has largely been ignored in the correctional literature (Gendreau, Goggin, & Smith, 1999; 2001). Three studies have directly examined the extent to which offender management is guided by results from risk assessments (Bonta, Rugge, Sedo, & Coles, 2004; Flores, Travis, & Latessa, 2004; and Harris, Gingerich, & Whittaker, 2004) and they will be discussed in turn. The purpose of the present study was to investigate the link between risk assessment and community case management of young offenders in Saskatchewan

and whether adherence to the principles of risk, need, and responsivity vis-à-vis the LSI-SK is related to recidivism.

In the remainder of the introduction, the literature on the principles of risk, needs, and responsivity will be reviewed, with a large focus on meta-analytic findings. Next, the correctional program implementation literature will be reviewed and the studies by Bonta et al. (2004), Harris et al. (2004), and Flores et al. (2004) will be discussed in detail. A brief review of the literature on the Level of Service Inventory (LSI) particularly the research on the derivations that have been adapted for use with young offenders follows. Finally, a snapshot of the young offender correctional landscape in Saskatchewan will be provided to set the context for the present study.

Principles of Risk, Need, and Responsivity

Briefly, the risk principle states that the level of service provided should reflect the risk level of the offender: high levels of service should be provided to offenders who are at high risk to recidivate while minimal service should be provided to low risk offenders (Andrews & Bonta, 2003; Andrews, Bonta, & Hoge, 1990). The need principle states that programs and services should target criminogenic needs (i.e., dynamic risk factors that, when changed, are associated with reductions in risk of recidivism). Finally, the responsivity principle involves selecting "the styles and modes of service that are (a) capable of influencing the specific types of intermediate targets that are set with offenders and (b) appropriately matched to the learning styles of offenders" (Andrews, Zinger, et al., 1990, p. 375).

In a seminal paper on the effectiveness of correctional treatment, Andrews, Zinger, et al. (1990) found that programs consistent with the principles of risk, need, and responsivity (i.e., appropriate treatment) generated mean effect sizes significantly

greater than unspecified correctional service, criminal sanctions, and inappropriate services (mean phi coefficients of .30, .13, -.07, and -.06, respectively) across the adult and juvenile justice systems. Appropriate correctional services were associated with a mean reduction of 53% in recidivism rate compared to control groups. The pattern was the same when examining young offender services only: the mean phi coefficients for appropriate services, unspecified services, inappropriate services, and criminal sanctions were .29, .13, -.07, and -.06, respectively. Furthermore, for services classified as appropriate, those delivered in the community were significantly more effective than those delivered in institutions.

A number of studies since the Andrews, Zinger, et al. (1990) paper have investigated the relationship between adherence to the principles of risk, needs, and responsivity and treatment effectiveness. Hanley (2006) conducted an evaluation of intensive supervision programs with over 1,000 offenders from 12 sites across 9 states in the United States. Risk was assessed by examining static risk factors such as age at first conviction, and number of prior arrests. Offenders who fell into the top and bottom 30% of the distribution in risk level constituted the high and low risk groups, respectively. Level of service was operationalized in a similar fashion as risk (e.g., offenders who had the top 30% of scores on the contact index – which included both supervision and treatment – were classified as the high contact group). Appropriateness was examined by matching the offender risk level to the contact level (e.g., high-risk offenders who received a high level of contact were scored as appropriate). Hanley found that less than 20% of the sample received level of service that is appropriate to their risk level. Nonetheless, high risk offenders who received appropriate level of service recidivated at

a lower rate than their high-risk counterparts who received inappropriate level of service (32.5% vs. 46.6%). Appropriateness, however, did not affect the recidivism rates of low-risk offenders

Using logistic regression, Hanley (2006) found that appropriateness was significant in the models predicting technical violations and rearrest. Appropriate level of service was associated with an 84% increase in the odds of having a technical violation but a 42% reduction in odds of being rearrested. Hanley reported that the negative relationship with technical violations is consistent with the literature that suggests that as supervision increases, so too does technical violations. However, appropriate level of service did not correspond to general increase in supervision across offenders, but rather high level of supervision for high-risk offenders and low level of supervision for low-risk offenders. The relationship between rearrest and appropriate services was consistent with the risk principle.

The risk principle was also assessed by Andrews and Dowden (2006) in a meta-analysis which included 225 primary studies yielding 374 correctional treatment comparisons. Risk was determined in one of two ways. First, when data on offender risk level were provided in the study, that measure of risk was used. Otherwise, high risk offenders were coded if the majority of the sample examined by the study were comprised of offenders who "had formally penetrated the judicial system at the time of the study and had a prior criminal record" (p. 92). Criminogenic needs were also dichotomized into programs that targeted more criminogenic than non-criminogenic needs and those that targeted as many or more non-criminogenic needs than criminogenic needs. Programs that utilized social-learning or cognitive-behavioural

techniques were coded as adhering to the general responsivity principle. Lastly, programs that adhered to both, only one, or none of the principles of needs and responsivity were coded as two, one, and zero, respectively, on the appropriate treatment variable. Risk was removed from this overall rating of appropriateness as the primary focus of the meta-analysis was on adherence to the risk principle (Andrews & Dowden).

Overall, Andrews and Dowden (2006) found that risk was significantly associated with effect size with a larger mean effect size for higher risk offenders. In addition, there was a significant relationship between risk and effect size for human service programs (with larger mean effect size for high risk than low risk offenders) but not for sanctions. Examining the other two principles, risk was significantly related to effect size for programs that targeted more criminogenic needs than non-criminogenic needs and for programs that adhered to the general responsivity principle; for both conditions, larger effect sizes were associated with higher risk offenders. Moreover, risk was significantly related to effect size for treatment that adhered to both principles of need and responsivity with a larger mean effect observed for higher risk offenders.

Andrews and Dowden (2006) also examined the correlation between risk and effect size for nine criminogenic needs and seven non-criminogenic needs. Whereas none of the correlations were significant for the non-criminogenic needs, the correlation between risk and effect size were positive and significant for all of the criminogenic needs except substance abuse treatment. That is, for eight of the nine criminogenic needs, higher mean effects were observed for higher risk offenders.

Adherence to the responsivity principle was examined in the Dowden and Andrews (2004) meta-analysis. They examined the relationship between core

correctional practices (e.g., effective use of reinforcement, disapproval, and authority, teaching problem-solving skills, and interpersonal skills) and treatment effectiveness (i.e., recidivism). Overall, the proportion of programs that reported use of core correctional practices was low (although this may be due to non-reporting rather than actual absence; Andrews & Dowden, 2004). Skill factors, teaching of problem solving skills, and advocacy and brokerage were the most frequently reported core correctional practices but they were each only present in 16% of the programs surveyed. However, when each of these core correctional practices were correlated with effect size, all but two were significant and positive; advocacy/brokerage and effective use of disapproval were not significantly related to effect size although the latter was present in only 3% of the programs.

Dowden and Andrews (2004) proceeded to dichotomize the core correctional practice variable into programs that had at least one core correctional practice and examined the effect sizes for low- versus high-risk offenders (i.e., risk principle), programs that predominately targeted criminogenic needs versus programs that did not (i.e., needs principle), for programs that used behavioural versus non-behavioural techniques (i.e., general responsivity), and for overall appropriate treatment (i.e., adherence to 2 or 3 of the principles of risk, needs, and responsivity) and inappropriate treatment (i.e., adherence to less than 2 principles). They found that the mean effect sizes were consistently larger when at least one core correctional practice was used (except programs that focused on non-criminogenic needs). Moreover, use of at least one core correctional practice was associated with significantly larger effects for programs that targeted high-risk offenders, targeted predominantly criminogenic needs,

and programs that adhered to at least two of the principles of risk, need, and responsivity. This was true for male and female samples, adult and young offender groups, and institutional/residential and community-based treatment.

The principles of risk, need, and responsivity have been supported at both the individual study as well as the meta-analytic levels (e.g., Andrews & Dowden, 2006; Andrews, Zinger, et al., 1990; Dowden & Andrews, 2004; Hanley, 2006). Furthermore, it appears that each of the risk and responsivity principles enhance correctional treatment only when the remaining principles are adhered to. That is, adhering to the risk principle does not enhance treatment effectiveness if the program targets more non-criminogenic needs than criminogenic needs (Andrews & Dowden, 2006); adherence to the responsivity principle does not enhance treatment effectiveness if the programs do not adhere to the risk and need principles (Dowden & Andrews, 2004). However, even if a program adheres to all three principles, its effectiveness in reducing recidivism may be reduced if the program is not implemented as designed.

Importance of Implementation

Implementation evaluation (also referred to as process evaluation and evaluation of program integrity) assesses whether a program has been implemented as intended (Hollin, 1995; Rossi, Lipsey, & Freeman, 2004). Among other issues, an evaluation of implementation examines whether the activities that are intended for the program are carried out appropriately by program delivery personnel. Unfortunately, the issue of implementation has not received the attention it deserves within the correctional treatment literature (Gendreau et al., 1999; 2001). Gendreau and colleagues (2001) briefly described two categories of problems in correctional program implementation. The first category (which they referred to as implementation) consisted of problems

associated with the unfamiliarity of program personnel to relevant literature and superficial review of the treatment literature before a program is implemented, questionable program developer qualifications, and the lack of attention to implementation lessons garnered from non-correctional literature. The second category of problems was client pre-service assessment. The specific issues that fell into this category included the use of clinical judgement over actuarial instruments to assess risk, the focus on static risk factors without commensurate attention to dynamic factors, and targeting dynamic factors that are only weakly associated with recidivism. The present study will focus on the issues in the second category identified by Gendreau and colleagues, and specifically, the two issues that address dynamic risk factors.

Given the lack of attention to implementation, it is therefore not too surprising when programs designed based on empirically-supported principles of effective correctional treatment fail to produce significant reductions in recidivism (Rhine, Mawhorr, & Parks, 2006); "the effectiveness of any state-of-the art assessment and treatment protocol is diminished, however, if careful attention is not paid as to how programs are implemented in the first place" (Gendreau et al., 1999, p. 180). A program's apparent inability to reduce recidivism may be due to poor program implementation rather than program design (Harris & Smith, 1996). The remainder of this section will review the literature on how program implementation is related to offender recidivism.

Lipsey and Wilson (1998) conducted a meta-analysis on the effectiveness of intervention on recidivism among serious young offenders. They reviewed a sample of 200 studies and found a significant mean effect of .12 (standardized mean difference)

which translates into a 12% reduction in recidivism among the treatment group compared to the control group. However, because there was significant variability among the mean effect sizes, Lipsey and Wilson conducted subsequent analyses to examine whether methodological differences between the studies and treatment characteristics accounted for some of the variance. They found that methodological variables (i.e., differences in research methods across the sample of studies) accounted for 12% of the variance in effect size. Among the treatment variables, they included a composite measure of amount of treatment which included the integrity of program implementation. They found that for community-based interventions, amount of treatment accounted for 20% of the variance in effect size after accounting for differences in methodology. Other researchers have examined the relationship between the quality of program implementation and recidivism more directly and this literature is reviewed next.

One instrument that has been developed to assess program quality is the Correctional Program Assessment Inventory (CPAI; Gendreau & Andrews, 2001). The most recent version (CPAI 2000) consists of 131 items in eight dimensions: "organizational culture, program implementation/maintenance, management/staff characteristics, client risk/need practices, program characteristics, dimensions of core correctional practice, inter-agency communication and evaluation" (p. 4). Each item is scored as yes, no, or not applicable. For example, item E5 of the client risk/need practices dimension reads "dynamic risk factors are assessed with a valid instrument" (p. 17). Scores for each dimension are tabulated as the proportion of items scored relative to the total possible score in that dimension. For example, there are 12 items in

client risk/need practices category. If 2 items were scored as not applicable, then the total possible score would be 10. The percentage score would then be the number of items scored divided by the total possible score. Programs with total scores below 50% are considered to be unsatisfactory; 50% to 68% corresponds to satisfactory; and scores of 70% or higher are very satisfactory.

Lowenkamp, Latessa, and Smith (2006) conducted site visits, interviews and surveys with program delivery and management personnel, and reviews of relevant program documents of 38 halfway house programs in Ohio and scored each program using an abbreviated version of the CPAI. They found that most programs failed to achieve satisfactory scores. Of the 38 programs that they assessed, 24 were deemed unsatisfactory, 13 were considered to be satisfactory but needed improvement (scores between 50% and 59%), and only 1 was rated to be satisfactory (between 60% and 69%). Lowenkamp et al. also examined the relationship between program integrity (measured using the CPAI) and treatment effectiveness (three outcome measures: technical violation, return to prison, and new offence) for adult parolees. Their sample of 38 halfway house programs consisted of a total of 3,237 parolees assigned to halfway houses (treatment group) who were matched (on risk level, sex, and county of conviction) to parolees who had not been placed in a halfway house. The total score on the CPAI correlated significantly and positively with the effect size for each of the three outcome measures (r values of .35 to .44). When section scores were correlated with outcome, scores from three sections correlated significantly with effect size and all the correlations were positive. Program implementation and pre-service client assessment scores (the latter of which is directly relevant for the present study) correlated

significantly with all three measures of recidivism (*r* values ranged from .33 to .58) while the score on the evaluation section was significantly correlated with new offence only (*r* = .45). They concluded that the effectiveness of halfway house programs in reducing recidivism is related to the quality of the program and specifically to the quality of program implementation, offender assessment, and evaluation. Furthermore, assuming a 50% base rate of recidivism for the control groups, programs scoring in the unsatisfactory, satisfactory but needs improvement, and satisfactory categories were associated with 4%, 16%, and 44% reduction in recidivism, respectively, although caution is needed in interpreting the results as most programs fell in the unsatisfactory category and only one program scored in the satisfactory range (Lowenkamp et al.).

Andrews and Dowden (2005) reported the first meta-analysis to directly examine the relationship between program integrity and effectiveness of correctional treatment programs. The definition of program integrity was the extent to which the program implemented was consistent with the intended program "in theory and design" (p. 174). They examined 10 indicators of program integrity: use of a specific theory or model of criminal behaviour, selection of workers who have interpersonal influence skills, whether workers were provided with training in the delivery of the program, clinical supervision of the workers is provided by an individual who is trained on the delivery of the program, use of training manuals, having measures in place to monitor process and/or intermediate gain, delivery of the program in adequate dosage, whether the program has been in operation for less than two years, the size of the treatment group is less than 100, and whether the program evaluator "was involved in the design, delivery or supervision of the programme" (p. 175). With the exception of two indicators (i.e.,

whether the treatment sample was less than 100 and having an involved evaluator), any indication that there was attention to the program integrity measures was sufficient to score the variable as present.

Despite the liberal coding of the program integrity measures (i.e., integrity item was scored as present if the study mentioned any information related to the integrity item; Andrews & Dowden, 2005), Andrews and Dowden found that program integrity information was often lacking in the reports. The range of program integrity items present was 0 to 9 (up to a possible 10) but the mean number of items present was 3.46. Using a specific model was the most frequently present indicator of program integrity (present in 59% of the cases). The least frequently mentioned indicator was selection of interpersonally skilled staff (present in 5% of the cases). Nonetheless, each of the indicators (except presence of program monitoring protocols and adequate dosage) were significant, positively correlated with effect size. However, when all of the indicators were regressed onto effect size, only three variables remained in the model: selection of staff with interpersonal skills, having an involved evaluator, and small sample size. Recall, however, that selection of staff was present in only 5% of the studies.

Andrews and Dowden (2005) also examined whether the relationship between program integrity and effect size varied as a function of the appropriateness of the program. Appropriate programs were those that were consistent with the principles of risk, need, and responsivity. They found no evidence to suggest that program integrity was related to effect size for inappropriate programs. For appropriate programs, however, there were six significant positive correlations between program integrity and effect size. It appears, then, that the enhancement of program integrity is limited to those

programs that are consistent with the principles of risk, needs, and responsivity; the effectiveness of inappropriate programs is not affected by the quality of program implementation. These results are consistent with the results from the two meta-analyses reviewed earlier (Andrews & Dowden, 2006; Dowden & Andrews, 2004).

The literature that has been reviewed thus far examined the implementation of treatment programs; the main purpose of the present study is to examine whether recidivism varies as a function of the extent to which offender case supervision/management adheres to the principles of risk, need, and responsivity through the use of a risk/needs assessment instrument. In other words, the present study is concerned with the extent to which risk assessment instruments have been applied to case supervision as the authors had intended. Three studies have examined this issue directly (Bonta et al., 2004; Flores et al., 2004; and Harris et al., 2004) and these studies are discussed in detail next.

The study by Bonta and colleagues (2004) was an evaluation of probation case management practices in Manitoba, Canada. All offenders who enter community supervision are assessed on their risk and needs using the Primary Risk Assessment (PRA). The PRA adult version was adapted from the Wisconsin Risk and Needs instrument and validated on a sample of Manitoba probationers (Bonta, Parkinson, Pang, Barkwell, & Wallace-Capretta, 1994) whereas the PRA youth version was adapted from the Youth Level of Service/Case Management Inventory (YLS/CMI; Andrews, Hoge, & Leschied, 2002). For probationers who have committed a sexual assault, partner assault, or general assault, probation officers are required to complete a Secondary Risk Assessment (SRA) that corresponds to each of the three types of assault (Bonta et al.,

2004). The purpose of these assessments is twofold. First, to assess the offender's risk level in order to apply the appropriate level of supervision. Second, the assessments identify criminogenic needs that need to be targeted in order to reduce the offender's risk of recidivism. After conducting the assessment(s), the probation officer will review other relevant information and discuss results of the assessment with the offender. The probation officer and the offender will then formulate an intervention plan to address each of the needs identified in the risk/needs assessment. The intervention plan is a one-page form that provides information on the criminogenic needs that were identified by the assessments, the plan of action that is in place to address each identified need, and whether the court has mandated a particular action plan. Although probation officers are typically required to complete the various assessment instruments and intervention plan within the first two or three months of receiving the case, for the purpose of Bonta and colleagues' study, probation officers were asked to complete all of those steps within one month of receiving the case.

Probation officers who participated in the study provided data on 154 offenders but the level of completeness varied. Files of 77 probationers were randomly selected from the caseload of 42 non-participating probation officers to examine whether there were systematic differences between the files from participating and non-participating probation officers. Proportions of probationers from participating and non-participating probation officers did not differ with respect to offender status (adult vs. youth), gender, ethnicity (Aboriginal vs. non-Aboriginal), education level, being employed/in school, marital status, or living arrangement. The majority of the probationers were adult offenders (73%), male (83%), and non-Aboriginal (55%). In addition, demographic and

attitudinal data were obtained from participating and non-participating probation officers. Participating and non-participating probation officers did not differ in terms of age, education level, years of experience as a probation officer, and ethnicity. They did differ on attitude towards the PRA with non-participating probation officers showing significantly more favourable views (Bonta et al., 2004).

A total of 136 intervention plans were available, 102 of which were for adult probationers and 34 for youth probationers. (Although the focus of the present study is on young offenders, both adult and young offender results are presented as the sample size for youth probationers in the Bonta et al., 2004, study was small). Overall, needs that were identified by the risk/needs assessments often did not have interventions. Moreover, when there were corresponding interventions, they were often mandated by the courts. For adult offenders, substance abuse was identified as a need in 40.2% (i.e., 39 out of 97 offenders) of the offenders and corresponding interventions were available for 79.5% of those with the need. However, 90.3% of these plans had been mandated by the court. Similarly, emotional needs were identified in 23.1% of the cases (i.e., 21 of 91 offenders) of which 71.4% had a corresponding intervention. Of these, 80% had a court mandate to address this need. Over half (51 out of 97) of the offenders had family/marital issues identified as a need, but only 29.4% had a corresponding intervention, all of which (100%) had been mandated by the court. The two areas of exception were employment and accommodation where the action plans appear to stem more from the probation officer than court mandates. For young offenders, the same pattern was observed where plans of action in place to target identified needs were often

mandated by the court (Bonta et al.) although the small sample size limits the generalizability of the results.

Bonta and colleagues (2004) also obtained permission to audiotape supervision sessions between the participating probation officers and their clients. Bonta and colleagues found that criminogenic needs identified through risk assessment were often not discussed during the intake interviews. For example, antisocial attitudes were identified in 34 of the 72 adult probationers but this need was discussed in only 3 of the cases. Similarly, peer problems were identified as an area of need in 38 of the 72 adult probationers but were discussed in only 8 cases. For youth probationers, peer problems were also frequently identified as an area of need (30 of the 31 youth) but were discussed in only 13 cases. Lastly, frequency of contact between the probation officer and probationers was positively related to risk level for adult probationers only; high risk probationers were seen significantly more frequently than low and medium-risk probationers but there was no significant difference in frequency of contact between low and medium risk offenders.

Overall, Bonta and colleagues (2004) found that needs identified by the assessments frequently did not have corresponding interventions. Rather, offender supervision appeared to be guided by court mandates and they suggested that supervision driven by court mandates "could potentially interfere with effective case management" (p. 28).

The finding by Bonta et al. (2004) that case management did not reflect risk assessment results was consistent with a large-scale study in Ohio completed by Flores and colleagues (2004). Flores et al. conducted a multi-site study to assess the predictive

validity and implementation of the YLS/CMI at a correctional institution, a residential facility, and probation service. They also surveyed frontline users of the YLS/CMI on their attitudes towards the instrument and whether or not they used the instrument in case management and provision of services. On average, the survey respondents did not have favourable attitudes towards the YLS/CMI. On a 10-point scale where 10 represented the most favourable rating, the average rating for how necessary the YLS/CMI was in the placement of young offenders was 5.23 and in the identification of treatment needs the average rating was 5.52.

Flores et al. (2004) also found that whereas 86% of the respondents reported using the overall risk score from the YLS/CMI in determining the intensity of supervision, only 56.7% reported using the component scores to guide treatment goals. Furthermore, although 79.5% of the respondents reported use of the YLS/CMI to develop their youth case plans, treatment and services on the case plans were largely unrelated to the needs identified by the YLS/CMI. Across the three sites, only one criminogenic need was significantly related to treatment provided. When peer relationship was identified as an area of need, the youths were more likely to have a no contact condition on their case plans. Focusing on the probation group, only the drug use component was significantly related to services; young offenders were more likely to receive drug treatment when this need was identified on the YLS/CMI. Overall, the YLS/CMI was used mainly as a risk assessment tool rather than a case management tool as case plans and goals were largely unrelated to the needs identified by the tool. From an implementation perspective, the potential of the risk/need assessment instrument cannot be realized unless the instrument is being used as designed.

The effect of a properly implemented fourth-generation risk assessment tool on recidivism should correspond to a reduction in the correlation between the initial risk score and recidivism. However, the relationship between the extent to which case management is guided by risk/needs assessment results and offender recidivism was not investigated in the previous two studies (Bonta et al., 2004 and Flores et al., 2004) and is an issue that has not been well researched (Hannah-Moffat & Maurutto, 2003). The only study that has examined the relationship between implementation and recidivism was conducted by Harris et al. (2004).

Harris and colleagues (2004) assessed the extent to which offender case management were consistent with the Client Management Classification System (CMC; Lerner, Arling, & Baird, 1986) for adult probationers in a south-central county in the United States and whether this was related to recidivism (i.e., revocation, re-arrest, or any technical violation). The CMC consists of a 45-item structured interview that assesses areas such as the attitudes that the offender holds about his/her offence, current problems, and plans for the future. Information on offence history, background, and behaviour during the interview are also collected. The information collected is used to classify the offender into one of five supervision categories that are used to inform the appropriate level and style of supervision for the offender. Probation officers are also required to rank order problem areas in terms of importance (force field analysis) and develop individualized case plans with behavioural objectives (along with action plan and timeframe for achieving them) to target the areas of need.

Harris and colleagues (2004) examined whether offenders supervised according to the CMC (i.e., differentially supervised group; $n = 581$) differed from offenders who

were supervised by officers who had not received any training on CMC assessment or supervision strategies (control group; $n = 436$) on recidivism. They found that the differentially supervised group were significantly more likely to fail to comply with certain court conditions (i.e., attend programs, pay restitution, work) than the control group. However, the differentially supervised group was significantly less likely to be revoked than the control group. After controlling for risk-related variables, group status (i.e., differentially supervised vs. regular supervision) contributed significantly to the prediction of revocation only; group status did not contribute to the prediction of new arrest or technical violations. The results on the effectiveness of differential supervision, however, need to be interpreted in the context of the results for the implementation evaluation.

Harris and colleagues (2004) examined a subset of the differential supervision group (210 cases of the original 581) to evaluate the extent to which CMC was delivered as designed. Harris et al. rated the extent to which supervision practices complied with the CMC system using nine items of program integrity (i.e., seriously deficient, some/partial compliance, and full compliance), each rated on a 3-point scale. They found that overall, differential supervision was not delivered as intended. Specifically, although the majority of the cases were correctly classified into one of the five categories of supervision, a large proportion of the cases was seriously deficient on the remaining eight program integrity items. For example, the problem statement describes how the probation officer understands the reasons behind the offender's criminal activity. To be rated as fully compliant on this item, the problem statement must correctly identify "(a) the offender's criminogenic need, (b) the offender's behaviour in

response to the criminogenic need, and (c) the consequences of the offender's behaviour" (p. 252). If the problem statement adhered to two of the three criteria, it would be rated as being partially compliant. The problem statement would be rated as seriously deficient if less than two criteria are met. Harris et al. found that 44.7% of the cases were rated as seriously deficient on this item; 36.2% and 19.1% were rated as having some and full compliance, respectively.

Another program integrity item examined was the quality of the force field analysis (Harris et al., 2004). Briefly, the force field allows the probation officer to identify the areas of needs that are more salient to the offender's offence. A force field analysis would be rated as fully compliant if the descriptions of the salient factors and needs were clear and detailed. A rating of some compliance would be given if the descriptions contained some relevant, but perhaps incomplete or subjective, information. Finally, this item would be rated as seriously deficient if the force field was lacking. Harris et al. found that 29.9%, 49.0%, and 21.1% of the cases were fully compliant, partially compliant, and seriously deficient, respectively.

Harris et al. (2004) then dichotomized the program integrity ratings to no compliance (i.e., seriously deficient) and at least some compliance (i.e., some or full compliance) and correlated each of the nine program integrity items with each of the three measures of recidivism (i.e., revocation, arrest during supervision, and any technical violation). There were five significant correlations (two for revocation and three for arrest), all in the negative direction. Quality of problem statement and timeliness of completion (i.e., supervision plan completed within 45 days vs. completed in over 45 days) were negatively correlated with revocation. A significantly smaller

proportion of offenders whose problem statements were at least partially complaint were revoked compared to those whose problem statements were not compliant (14.4% vs. 34.5%). Similarly, a significantly smaller proportion of offenders whose supervision plan was completed within 45 days were revoked compared to those whose plans were completed after 45 days (19.5% vs. 32.3%). Furthermore, smaller proportions of offenders whose problem statements were correct, whose force fields were adequate, and whose probation officers followed CMC strategy were re-arrested compared to their counterparts (25.0% vs. 40.5%, 27.5% vs. 48.8%, and 27.9% vs. 41.8%, respectively). Overall, although the majority of the relationships were not significant, when they were, they were negative suggesting that higher program integrity (i.e., classification implemented as intended) were associated with lower rates of recidivism.

In summary, the importance of evaluating the extent to which risk/needs instruments are implemented cannot be underestimated. Before any program or intervention can be evaluated on its effectiveness, one should assess whether the program or intervention was actually delivered as intended; "even the best evidence-based programs will not be effective if they are not properly implemented and monitored" (Borum, 2003, p. 128). The present study will examine the extent to which the LSI-SK (Andrews et al., 2001) is being used in the preparation of young offenders' community management strategies; to what extent are community supervision and management strategies guided by the needs identified by the LSI-SK. Furthermore, the present study will examine whether recidivism is related to the extent to which young offender case plans adhere to the principles of risk, need, and responsivity vis-à-vis the utilization of the LSI-SK.

Level of Service Inventory

The Level of Service Inventory (LSI) was first developed by Don Andrews to assess risk of reoffending among adult offenders (Hoge & Andrews, 2002). The original LSI (Andrews, 1982, as cited in Hoge & Andrews) has since been revised and adapted for use with a variety of offender populations in Canada, the United States, and elsewhere. In a meta-analysis by Gendreau, Little, and Goggin (1996), the LSI-R had the highest correlation with recidivism amongst the Salient Factor Score (Hoffman, 1983), the Wisconsin system (Baird, 1981), and other instruments. Although the correlation for the LSI-R was not statistically different from the correlations for the other instruments, the correlations with the LSI-R were larger than the correlations with the Wisconsin and the Salient Factor Score 76% and 67% of the time, respectively. Gendreau and colleagues concluded that the LSI-R was "the current measure of choice" (p. 590). Since then, a number of studies have been published assessing the reliability and validity of the LSI and its derivations (e.g., Flores, Lowenkamp, Smith, & Latessa, 2006; Girard & Wormith, 2004; Holsinger, Lowenkamp, & Latessa, 2006; Simourd, 2004; Simourd & Bruce, 1998).

The LSI has also been adapted for use with young offenders. Jung and Rawana (1999) assessed the validity of the YLS/CMI (Hoge & Andrews, 2002) on a young offender sample from two probation offices in the province of Ontario. They reported an overall reconviction rate of 76% over a 6-month follow-up period, with significantly more Aboriginal offenders reoffending than non-Aboriginal offenders. They found that recidivists had significantly higher mean YLS/CMI total scores than non-recidivists, with no significant effect of sex (and no significant interaction between sex and recidivism on YLS/CMI total scores). Moreover, Jung and Rawana found that

Aboriginal offenders had significantly higher total YLS/CMI scores than non-Aboriginal offenders but there was no significant interaction between ethnicity and recidivism on total YLS/CMI scores.

Schmidt, Hoge, and Gomes (2005) examined the predictive and concurrent validities of the YLS/CMI on a sample of young offenders from northwestern Ontario who had been referred for mental health assessments. They used a number of different measures of recidivism, namely any reoffense, serious reoffense, number of new offences, and time to new offence. They found that the YLS/CMI total score was significantly and positively correlated with serious reoffending and number of new offenses. (The correlation between total score and any reoffense was significant for males only.) The YLS/CMI total score was negatively correlated with months to new offense. Taken together, young offenders with higher YLS/CMI total scores were more likely to reoffend seriously, to commit higher number of offences, and to do so in a shorter period of time than offenders with lower total scores. Furthermore, Schmidt et al. found that the YLS/CMI scores correlated significantly with the externalizing, internalizing, delinquent, and total scores on the Child Behaviour Checklist, parent (Achenbach, 1991a) and youth self-report (Achenbach, 1991b), supporting the concurrent validity of the YLS/CMI.

Gossner and Wormith (2007) assessed the predictive validity of the YLS/CMI on a sample of 94 young offenders (66% of which were Aboriginal) from two cities in the province of Saskatchewan. Gossner and Wormith reported that 52% of their sample incurred a new charge and 32% were reconvicted over a 6-month follow-up period. In addition, they found that the YLS/CMI total scores were significantly correlated with a

new charge and new conviction for Aboriginal, male, and female offenders. The YLS/CMI total score was not significantly related to subsequent charge or conviction for non-Aboriginal offenders. Other studies that have examined the psychometric properties of the YLS/CMI are summarized in the *Youth Level of Service/Case Management Inventory: User Manual* (Hoge and Andrews, 2002).

The only study that has been completed on the LSI-SK was completed by Rector, Wormith, and Banka (2007). They assessed the predictive validity of the LSI-SK on a Saskatchewan provincial sample of 872 young offenders (76.1% of the sample were male). The majority of the sample were Aboriginal (72%), 49% were between the ages of 12 and 15 years and 51% were between the ages of 16 and 17.5. The mean follow-up time was just over 16.5 months. Rector and colleagues found that the LSI-SK total score was positively correlated with recidivism (r = .38). The percentage of offenders within each of the five risk categories (i.e., very low through to very high) that recidivated increased as the risk level increased. This pattern was consistent for Aboriginal (r = .37) and non-Aboriginal (r = .33) offenders, offenders between 12 and 15 years of age (r = .40) and those between 16 and 17 years of age (r = .40), and male (r = .40) and (to a lesser extent) female (r = .29) young offenders. The results of the four young offender studies reviewed in this section are summarized in Table 1.1.

The next section provides a brief overview of the young offender correctional landscape in Saskatchewan in order to set the context for the present study.

Table 1.1. Summary of Young Offender Studies Reviewed

Study	LSI Derivation	Sample characteristics	*N*	Recidivism Rate	Length of Follow up (months)	LSI score [*M* (*SD*)]	Correlation between LSI Score and Recidivism
Rector, Wormith, & Banka (2007)	LSI-SK	Saskatchewan young offender sample (i.e., across province and types of sentences)	872	49%	16.5	21.69 (9.83)	.38
Jung & Rawana (1999)	YLS/CMI	Young offender sample from two probation offices in Ontario	263	76%	6	11.38 (8.32)	-
Schmidt, Hoge, & Gomes (2005)	YLS/CMI	Northwestern Ontario young offenders who had been referred for mental health assessment	107	46.3%	35.8	16.9 (9.3)	.26 [a]
Gossner & Wormith (2007)	YLS/CMI	Young offenders from North Battleford and Saskatoon, SK.	94	32%	6	15.93 (7.08)	.36

Note. – denotes that the statistic was not reported. [a] Correlation with serious reoffence.

Young Offender Corrections in Saskatchewan

The number of youths being admitted into the correctional system has been on the decline since the early 1990s with the largest one-year reduction observed between the 2002/2003 and 2003/2004 fiscal years (Statistics Canada, 2006). This shift was marked by the implementation of the Youth Criminal Justice Act (YCJA, 2002) which came into effect on April 1, 2003 (Department of Justice, 2005). In 2004/2005, the total number of youth in correctional services was 31,746, an 11.8% reduction from 2003/2004 (Calverly, 2007). At the same time, there was a 20% reduction in the number of youths who received a probation sentence. These national statistics, however, excluded the youths in the three territories, Saskatchewan, Prince Edward Island, and the 12- to 15-year old youths in Ontario. In Saskatchewan, the number of youths admitted to probation decreased from 1,339 to 1,265 between 2003/2004 and 2004/2005 (Calverly).

The LSI-SK was adapted from the Level of Service Inventory – Ontario Revision (LSI-OR, now the Level of Service/Case Management Inventory, LS/CMI; Andrews, Bonta, & Wormith, 2004) for use with the Saskatchewan young offender population (Andrews et al., 2001). The LSI-SK is a structured risk/need assessment instrument that is used to identify a young offender's risk level, criminogenic needs, responsivity factors, and areas of strength such that the information can be used to direct case management/supervision. It was implemented by the Saskatchewan Department of Corrections and Public Safety, Young Offender Division for use throughout Saskatchewan between 2003 and 2004. To date, there has been no published data on its predictive validity.

Training and Mastery Criteria

A number of policies and standards were implemented by Corrections and Public Safety when the LSI-SK was adopted into offender case management practices. Training and mastery criteria were developed to ensure that youth workers who administer and score the LSI-SK are fully trained in the use of the tool. There are three levels of mastery and each has its associated criteria and authority. Level 1 mastery authorizes the youth worker to submit LSI-SK assessment results to the court, either as a stand alone assessment report or as part of a presentence report. In order to achieve level 1 mastery, youth workers must complete the standard 2-day training on the theory, research, and application of the LSI-SK and submit written responses to questions on topics which were covered during the training sessions. In addition, youth workers must score a minimum of two LSI-SKs on young offenders whose overall risk levels had been scored as medium or higher, with one youth scoring high or very high. The validity and reliability of the assessments are then verified. Once the assessments have been deemed valid and reliable, the youth worker must prepare two reports (either a presentence report or a stand-alone LSI-SK assessment report) summarizing the results of the assessment in accordance with department standards and policies. Youth workers who have not achieved mastery level 1 but have completed the 2-day training may still submit reports to the court only when the report has been verified by an individual who has achieved level 2 mastery. Youth workers, however, must achieve level 1 mastery within 11 months of their hire.

In order to achieve level 2 mastery, youth workers must have achieved level 1 mastery for a minimum of six months and demonstrate comprehensive knowledge of

LSI-SK scoring and report formats. In addition, the individual must successfully review the assessments completed by youth workers who are working towards level 1 mastery.

Level 3 mastery criteria includes all of the criteria of level 2 mastery, competency in reviewing reports, and understanding of special populations of offenders (e.g., sex offenders and violent offenders). Individuals who have achieved level 3 mastery may grant and suspend level 1 mastery to other staff in Corrections and Public Safety.

In addition to the mastery levels, Corrections and Public Safety conducts ongoing quality assurance checks to ensure that department standards and policies related to the LSI-SK and reports are adhered to. When standards are not met, mastery levels may be suspended (all three levels are subject to quality assurance checks and suspension).

Supervision Standards

In order to ensure that community supervision levels are consistent with the young offenders' risk levels, Corrections and Public Safety implemented supervision standards that outline the frequency of supervision to be provided for each of the risk levels. A minimum frequency of contact is not specified for low risk offenders. Youth workers are charged with the task of determining the level of supervision that is most appropriate. The supervision standard for medium risk offenders is a minimum of two contacts per week, one face-to-face and one telephone contact. High risk offenders are to be supervised at a minimum every 48 hours. All of these supervision standards are to be maintained for the first four weeks of community supervision after which the youth worker may adjust the supervision frequency to reflect, for instance, new assessment information or progress in case plan.

Community Safety Plan

The Community Safety Plan (CSP) is a case plan completed by a youth worker (young offender probation officer) that describes how the offender is to be managed in the community and the interventions or rehabilitation efforts that will be or are in place to reduce the risk of reoffending. The CSP consists of three sections (assessment, risk management, and risk reduction) and the contents within each section have been standardized. Department policy dictates that CSPs are to directly reflect risks/needs identified by the LSI-SK; the quality of the CSPs, then, is a proximate measure of the extent to which the LSI-SK has been implemented.

In July 2005, an internal pilot audit was conducted to examine the quality (i.e., completeness) of a sample of CSPs (n = 19) at a probation office in Saskatchewan (Program Development and Therapeutic Services, Young Offender Programs, 2005). They found that all of the CSPs were based on valid LSI-SK assessments (i.e., the assessment had been completed within the last 12 months) but only 79% of the cases had identified all of the major risk areas and the pattern of offending. Furthermore, only 26% of the cases were completed within the required time, and only 26% of the cases identified other responsivity issues. Six items were used to assess the risk management section. The audit found that each of the six items was present in less than 50% of the files reviewed. Court conditions were identified in only 42% of the cases and safety agreements that were based on the offence pattern were described in only 32% of the cases. Lastly, for the risk reduction section, 68% of the cases described interventions for all of the major risk areas, 47% tailored interventions to meet responsivity issues, and 68% of the CSPs had involved support persons in the interventions. Overall, the results suggest that the CSPs were not being completed as designed. However, there are several

limitations to this pilot study. First, the sample size was very small. Second, the items only examined whether or not an item was present; the quality of the information provided (e.g., detailed and clear) was not assessed. Lastly, the relationship between the quality of the CSPs and offender outcome was not examined.

Research Questions and Hypotheses

The purpose of the present study was twofold. First, the study assessed the predictive validity of the LSI-SK (Andrews et al., 2001) on a sample of young offenders in Saskatoon and Regina. Based on the literature on the LSI and its derivations and particularly the results of the Rector et al. (2007) study, it was hypothesized that the LSI-SK scores would be positively correlated with recidivism: low risk offenders would recidivate at lower rates than high risk offenders. Furthermore, the proportion of offenders who recidivate would increase as a function of risk level.

Second, the study examined whether young offender recidivism is a function of the extent to which the LSI-SK has been applied in the development of case plans by looking at two process variables: the completeness of the CSPs (quality assurance/completeness) and the degree to which the client interventions listed on the CSPs would be consistent with the principles of risk, need, and responsivity (appropriateness).

It was predicted that completeness and appropriateness would be positively correlated. Moreover, significant main effects on recidivism were hypothesized for each of the two process variables. Completeness of CSPs and appropriateness would each be significant predictors of recidivism with higher scores on each of these variables associated with a reduction in odds of recidivating.

In light of the research on effective correctional programming, collectively, offenders whose safety plans are consistent with the principles of risk, need, and responsivity (i.e., appropriate intervention) were hypothesized to recidivate at lower rates than their counterparts whose safety plans were not consistent with their LSI-SK results. Specifically, it was hypothesized that:

1. offenders whose supervision level was consistent with their risk level would be less likely to recidivate than offenders whose case management intensity were inconsistent with their risk level;
2. offenders whose case plans targeted needs identified on the LSI-SK would be less likely to recidivate than offenders who received interventions that did not correspond to identified needs;
3. offenders whose case plans attended to responsivity factors would be less likely to recidivate than offenders whose case plans did not address responsivity factors.

Lastly, in accordance with the risk principle, it was anticipated that the effect of CSP completeness and appropriateness on recidivism would be moderated by risk. Specifically, high risk offenders who had more complete CSPs would be less likely to recidivate than high risk offenders with incomplete CSPs whereas completeness of CSP would not affect recidivism rates of low risk offenders. Moreover, high risk offenders whose safety plan interventions were appropriate would be less likely to reoffend than their high risk counterparts whose interventions were inappropriate. Similarly, low risk offenders whose safety plan interventions were appropriate would be less likely to reoffend than their low risk counterparts whose interventions were inappropriate; low risk offenders with inappropriate interventions were hypothesized to be at a moderate (lower

than high risk offenders with inappropriate safety plan interventions) likelihood of reoffending.

CHAPTER 2
METHOD

Participants

The sampling frame consisted of youth who were adjudicated as young offenders and received a probation order between March 1, 2004 and March 1, 2005 in Saskatoon and Regina. Saskatoon and Regina were two of the first cities to implement the LSI-SK into probation practices in 2003. The timeframe was selected to help minimize effects related to implementation of a new instrument (e.g., staff training) and to ensure the follow-up period would allow for meaningful analyses.

There were a total of 153 and 194 young offenders from Regina and Saskatoon, respectively, who met the criteria. Due to reasons such as missing files and lack of relevant documents, data were collected on 84 and 109 young offenders from Regina and Saskatoon, respectively, for a total sample size of 193.

Measures

Demographic Information.

Information on age, sex, ethnicity, and highest education level were collected from offenders' correctional files.

Criminal History and Index Offence-Related Information.

Index Offence. Information on the age at index conviction, number of the index offences, and nature and length of disposition (i.e., probation only or custody and probation) were collected from the offenders' correctional files.

Criminal History. The age at first conviction, number of prior sentencing occasions, and number of prior offences were recorded from the offenders' correctional files.

Level of Service Inventory – Saskatchewan Youth Edition

The Level of Service Inventory – Saskatchewan Youth Edition (LSI-SK; Andrews et al., 2001), adapted from the LSI-OR (now the LS/CMI; Andrews et al., 2004), consists of six sections: general risk/need factors, specific risk/need factors, risk/need summary, risk/need profile, other client issues/considerations, and special responsivity considerations. The general risk/need factors section is composed of 8 subcomponents and a total of 45 static risk, dynamic risk, and strength items. Thirty-two of the items are coded using binary (yes-no) responses (e.g., not in school/currently employed) while thirteen are rated on a 4-point scale from 0 to 3 assessing how satisfactory the current situation is and the degree of improvement that is needed. A score of 0 corresponds to "a very unsatisfactory situation with a very clear and strong need for improvement" (p. 4) and 3 corresponds to "a satisfactory situation with little opportunity or need for improvement" (p. 4). The rated items can be risk or strength items with scores of 0 and 1 indicating risk and 2 and 3 indicating strength.

Although there is a large literature base for other variations of the LSI (e.g., LSI: Loza & Simourd, 1994; LSI-R: Gendreau et al., 1996; Flores et al., 2006; Holsinger et al., 2006; Simourd, 2004; Simourd & Bruce, 1998; LSI-OR: Girard & Wormith, 2004; YLS/CMI: Gossner &Wormith, 2007; Schmidt et al., 2005; Jung & Rawana, 1999), there is currently no published literature on the validity of the LSI-SK. The only study that examined the predictive validity of the LSI-SK was completed by Rector et al. (2007).

Community Safety Plan

The community safety plan (CSP) is a document developed by Corrections and Public Safety to ensure that offender management reflects the department's objectives to enhance community safety through risk management and to promote risk reduction through systematic rehabilitation efforts (Corrections and Public Safety, n.d.). The CSP is formulated by community youth workers to guide offender management. It consists of three main sections: assessment, risk management, and risk reduction. The assessment section identifies the offender's criminogenic needs and overall risk level according to results of the LSI-SK assessment, the offence pattern (i.e., how the risk factors contributed to the offence), areas of strength, and responsivity factors. The risk management section lists all the conditions imposed by the court or the youth workers, the safety agreement (instructions or restrictions in place to manage the offender's risk), and the supervision and reporting schedule, including contacts with collateral support persons and service providers. The risk reduction section describes the activities that are/will be in place to target each of the criminogenic needs identified by the LSI-SK, along with a timeframe for completion. In addition, the individuals who have been identified as support persons, their contact information, and the nature of their involvement with the offender are listed in this last section.

Pre-Sentence Report

Guidelines for the pre-sentence report (PSR) in Canada are described in detail in section 40 of the *YCJA* (2002; Department of Justice Canada, 2005). Briefly, the PSR is a document requested by the youth court justice before a sentence is delivered and contains information related to the case, summaries of interviews with the youth, the youth's family members (if appropriate), interviews with the victim of the offence (if

appropriate), and recommendations that have been derived from conferencing (if applicable). PSRs in Saskatchewan have explicitly incorporated a section to discuss results of risk/need assessments (Bonta, Bourgon, Jesseman, & Yessine, 2005; B. Rector, personal communication, June 7, 2007). Furthermore, PSRs developed in Saskatchewan also outline a recommended plan of offender risk management to target the risk/needs identified using the LSI-SK. Essentially, this case plan describes the services and interventions that Corrections and Public Safety are prepared to implement if the youth is given a community disposition (B. Rector, personal communication, June 7, 2007).

Completeness

There were two sets of variables to examine the extent to which the LSI-SK has been implemented. The first set of items (i.e., quality assurance items) have been adapted from the internal audit by Corrections and Public Safety, Young Offender Programs (Program Development and Therapeutic Services, Young Offender Programs, 2005) and consists of 17 items that are scored dichotomously (yes/no; refer to Appendix). These 17 items assess how complete the CSP is by looking at whether certain characteristics/sections have been completed. For each item, a score of 1 is assigned when the answer is yes and a score of 0 is assigned when the answer is no. The scores are summed across the 17 items to derive a completeness score for each young offender.

Appropriateness

The second set of variables measures the extent to which the interventions adhere to the need principle. Subscales that score in the medium risk or higher categories are categorized as an area of need. Areas identified as needs according to the subscale scores are then compared to the youth worker's case plans in terms of whether or not the area has been identified as a need by the youth worker (appropriate identification) and

whether or not an intervention to address the need has been identified (appropriate intervention). The education/employment subscale has been chosen to illustrate how appropriateness was scored.

Appropriate Identification. If the score on the education/employment subscale is medium risk or higher and the youth worker identified education/employment as an area of need, a score of 1 was assigned. If the subscale score was very low or low risk and the youth worker did not identify education/employment as an area of need, a score of 1 was also assigned. If the subscale score was medium risk or higher and the youth worker did not identify the area as a need, a score of 0 was given. Conversely, if the subscale score was very low or low risk and the youth worker identified the area as a need, a score of 0 was assigned. This scoring procedure was repeated for each of the eight subscales and summed to derive a total appropriate identification score.

Appropriate Intervention. A scoring procedure similar to that which was used to derive the appropriateness identification score was used to derive the appropriate intervention score. Subscale scores were compared to whether or not an intervention was identified for the need. When an intervention was identified for an area that scored in the medium risk or higher categories, a score of 1 was assigned. When there was no intervention for an area that scored in the very low or low risk categories, a score of 1 was assigned. When an intervention was identified for an area that scored in the very low or low risk categories, a score of 0 was assigned. When no intervention was identified for an area that scored in the medium risk or higher categories, a score of 0 was assigned. As in the appropriate identification score, the scoring procedure was repeated for each subscale and summed to derive the appropriate intervention (i.e., appropriateness) score.

Inappropriate Treatment. When there was a mismatch between intervention and subscale score, the intervention was coded as either over treatment (i.e., presence of an intervention for an area that scored very low or low risk) or under treatment (i.e., absence of an intervention for an area that scored medium risk or higher). The over and under treatment scores were summed across the subscales to derive total over and under treatment scores.

Responsivity

The CSP did not have an explicit section devoted to interventions to address specific responsivity factors. As such, during the conceptualization and development of the research methodology, no consideration was given to the collection of data on responsivity. Early on in the data collection phase, it became clear that data could be collected on specific responsivity factors by inferring from interventions listed to address criminogenic needs. For example, youth workers may list "youth expressed interest in pursuing Aboriginal cultural activities such as dances and sweats" as an intervention to address leisure/recreation time. However, this intervention also incorporated culture (i.e., specific responsivity) into case management so it would have been identified as an intervention to address leisure/recreation and an intervention to address specific responsivity. When possible, data on specific responsivity were collected.

Outcome Measure and Length of Follow-Up.

Recidivism was defined as a new conviction that would be registered on the provincial offender files and computer database. This included convictions that resulted in a new sentence, time served, and official reprimands. Recidivism data were collected for a follow-up period ending on March 1, 2007 for most cases. As there were difficulties accessing adult reconviction data, the young offenders were followed until their 18th

birthday or March 1, 2007, whichever was later unless the young offenders were already 18 years of age or turned 18 years of age while serving their young offender sentence. In the latter two scenarios, the young offenders were followed until the end of their probation order unless file information indicated that they incurred a new charge as an adult. When this was the case (13 cases), adult conviction data were requested from Corrections and Public Safety and the recidivism check date for these cases was July 30, 2007. Lastly, pseudo recidivism (i.e., new convictions for offences that were committed before the index sentencing date) were excluded from the analyses. This was determined by comparing the offence charge dates to the date of the index sentence.

Procedure

The present study involved archival data collection from files maintained by the Saskatchewan Department of Corrections and Public Safety, Young Offender Division, such as the LSI-SK assessments (face sheet and scoring notes), CSPs, PSRs, LSI-SK assessment reports, and progress reports. Ideally, case plans were coded from CSPs, but when CSPs were not available, PSRs were used. When neither CSPs nor PSRs were available, LSI-SK assessment reports were used to code case plan data. When all three documents were not available, the author coded case plan data from progress notes. In addition, when information was missing from the files, data were collected from the Saskatchewan Young Offender Case Administration Management System which is the computerized provincial offender management database and stores information such as the offenders' demographic information, LSI-SK scores, and recidivism.

Case plan data that were recorded include the following: level/frequency of supervision; criminogenic needs that have been identified by the youth worker as needs;

interventions and the criminogenic needs that the interventions were identified to address; and specific responsivity factors and their corresponding interventions.

Analyses

Statistical analyses were completed using the *Statistical Package for the Social Sciences* (*SPSS*) version 14.0 for Windows (2005). Descriptive statistics were presented using frequencies, means, and standard deviations. Comparisons of proportions between groups were completed using chi-squared analyses. Comparisons of means between groups were completed using independent samples *t*-tests and ANOVA. Relationships between LSI-SK total and subscale scores, appropriateness score, over treatment scores, under treatment scores, ethnicity, and recidivism were examined using correlations. Analyses related to the prediction of recidivism were completed using sequential logistic regression.

CHAPTER 3
RESULTS

Sample Characteristics

Demographic characteristics are presented in Table 3.1. The majority of the sample was male (73.6%) and Aboriginal (69.3%). Over half (53.4%) of the sample had a prior conviction. There was no significant difference between the sample from Regina and Saskatoon in proportions of male and female offenders [χ^2 (1) = 1.11, p = .29, *ns*], non-Aboriginal and Aboriginal offenders [χ^2 (1) = 0.02, p = .89, *ns*], and offenders with prior convictions [χ^2 (1) = 0.12, p = .73, *ns*].

Table 3.1. Demographic Characteristics for Saskatoon, Regina, and Total Sample

	Frequency [*n* (%)]		
	Saskatoon	Regina	Total
Overall total	109 (56.5%)	84 (43.5%)	193 (100.0%)
Sex			
Male	77 (70.6%)	65 (77.4%)	142 (73.6%)
Female	32 (29.4%)	19 (22.6%)	51 (26.4%)
Total	109 (56.5%)	84 (43.5%)	193 (100.0%)
Ethnicity			
Non-Aboriginal	40 (36.7%)	30 (35.7%)	70 (36.3%)
Aboriginal	69 (63.3%)	54 (64.3%)	123 (63.7%)
Total	109 (56.5%)	84 (43.5%)	193 (100.0%)
Prior conviction			
No	52 (47.7%)	38 (45.2%)	90 (46.6%)
Yes	57 (52.3%)	46 (54.8%)	103 (53.4%)
Total	109 (56.5%)	84 (43.5%)	193 (100.0%)

Note. Chi-square statistics were computed for each 2 x 2 contingency table and none was significant.

Table 3.2 presents means and standard deviations for a number of criminal history and index conviction variables for the total sample and the Saskatoon and Regina

subsamples. There was no difference between the Saskatoon and Regina samples on mean age of first conviction, age at index sentencing, number of index offences, and length of probation. Overall, the mean ages at first conviction and index sentencing were 14.84 years (*SD* = 1.61) and 15.77 years (*SD* = 1.47), respectively. The mean number of index offences was 4.47 (*SD* = 3.99) and the mean length of probation sentence for the index sentence was 10.21 months (*SD* = 4.10). One-hundred and three young offenders had a prior conviction, with an overall average of 2.28 (*SD* = 1.84) sentencing occasions. There was no significant difference between the Saskatoon and Regina samples on the number of prior sentencing occasions although the Saskatoon sample had been convicted of a significantly higher number of offences (*M* = 9.88, *SD* = 10.38) than Regina (*M* = 5.85, *SD* = 4.26).

Table 3.2. Criminal History and Index Conviction Descriptive Statistics

	M (*SD*)		
	Saskatoon	Regina	Total
Age at index sentence date	15.68	15.89	15.77
	(1.36)	(1.60)	(1.47)
Number of index offences	4.92	3.89	4.47
	(4.11)	(3.77)	(3.99)
Length of probation	10.02	10.44	10.21
	(4.22)	(3.96)	(4.10)
Highest level of education completed	8.66	8.57	8.62
	(1.17)	(1.32)	(1.24)
Age at first conviction	14.77	14.94	14.84
	(1.56)	(1.67)	(1.61)
Prior convictions (*n* = 103)			
Number of prior sentencing occasions	2.33	2.22	2.28
	(1.95)	(1.73)	(1.84)
Number of prior offences for which the offenders had been convicted**	9.88	5.85	8.08
	(10.38)	(4.26)	(8.44)

Note. ** $p < .01$

The distribution of LSI-SK total scores for the total sample is presented in Figure 3.1. Tabachnick and Fidell (2001) advise the use of conservative alpha levels (.01 or .001) to test for skewness and kurtosis for small to moderate sample sizes. Using an alpha level of .001, tests of skewness and kurtosis were not significant. (z_s = -0.057, *ns*; z_k = -2.43, *ns*). The mean LSI-SK total score was 20.26 (*SD* = 9.32).

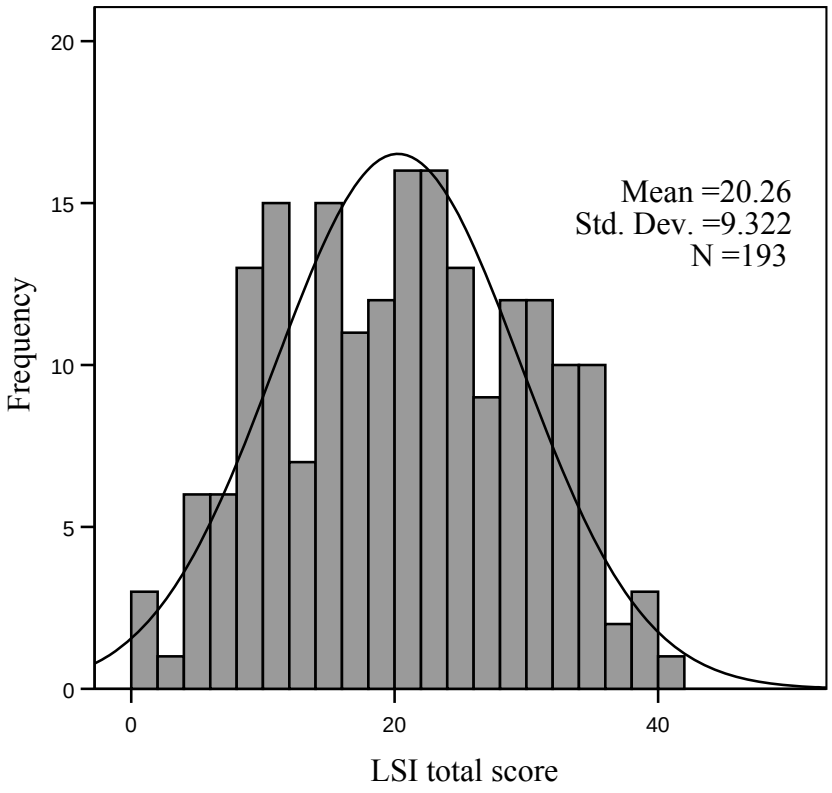

Figure 3.1 – Distribution of LSI-SK Total Scores

Mean LSI-SK total scores according to sex and ethnicity are presented in Table 3.3. Comparisons of the means were conducted using a 2 x 2 ANOVA. There was no significant main effect for sex, F (1, 189) = .004, p = .95, *ns*; mean LSI-SK total scores

for males and females did not differ significantly (M_{males} = 20.01, SD_{males} = 9.65; $M_{females}$ = 20.98, $SD_{females}$ = 8.38). There was a significant main effect of ethnicity on LSI-SK total scores, F (1, 189) = 16.234, $p < .001$; Aboriginal offenders had significantly higher LSI-SK total scores than non-Aboriginal offenders ($M_{Aboriginal}$ = 22.82, $SD_{Aboriginal}$ = 8.87; $M_{Non\text{-}Aboriginal}$ = 15.77, $SD_{Non\text{-}Aboriginal}$ = 8.40). There was no significant interaction between sex and ethnicity, F (1, 189) = .178, p = .67, *ns*.

Table 3.3. Mean LSI-SK Total Scores by Sex and Ethnicity

	LSI-SK Total Scores [*M* (*SD*)]
Total (*n* = 193)	20.26 (9.32)
Sex	
Male (*n* = 142)	20.01 (9.65)
Female (*n* = 51)	20.98 (8.38)
Ethnicity***	
Non-Aboriginal (*n* = 70)	15.77 (8.40)
Aboriginal (*n* = 123)	22.82 (8.87)
Male	
Non-Aboriginal (*n* =59)	15.68 (8.70)
Aboriginal (*n* = 83)	23.08 (9.14)
Female	
Non-Aboriginal (*n* = 11)	16.27 (6.86)
Aboriginal (*n* = 40)	22.28 (8.36)

Note. ***$p < .001$

LSI-SK total scores were then categorized into risk levels according to the cutoffs in the manual. The frequency distribution by risk level is presented in Figure 3.2. For the remainder of the analyses, offenders in the very low and low risk categories have been collapsed into one category as there were so few offenders in the very low risk level.

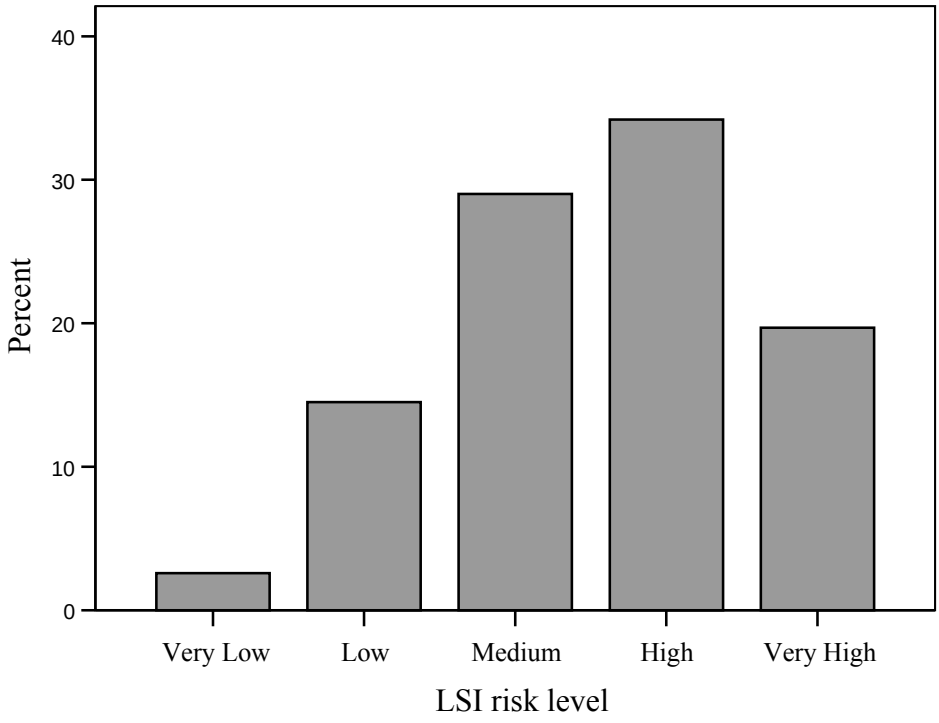

Figure 3.2 – Distribution of Young Offenders by LSI-SK Risk Levels

Recidivism

The proportion of offenders from the Saskatoon and Regina offices as well as the total sample who recidivated are presented in Table 3.4. The proportion of recidivists and non-recidivists did not differ significantly between the Saskatoon and Regina offices, χ^2 (1) = 0.135, p = .71, *ns*.

Table 3.4. Recidivism by Probation Office

	Recidivism *n* (%)		
Probation Office	No	Yes	Total
Saskatoon	40 (36.7%)	69 (63.3%)	109 (56.5%)
Regina	33 (39.3%)	51 (60.7%)	84 (43.5%)
Total	73 (37.8%)	120 (62.2%)	193 (100.0%)

Note. χ^2 (1) = .135, p = .71, *ns*.

Recidivism rates according to sex and ethnicity are presented in Table 3.5. There was no significant effect of sex [χ^2 (1) = 0.189, p = .66, *ns*] but there was a significant effect of ethnicity whereby a larger proportion of Aboriginal offenders recidivated than non-Aboriginal offenders [62.2% and 37.8%, respectively; χ^2 (1) = 10.56, p = .001]. This difference was to be expected since Aboriginal offenders have significantly higher LSI-SK total scores than non-Aboriginal offenders.

Table 3.5. Recidivism by Sex and Ethnicity

	Recidivism *n* (%)		
	No	Yes	Total
Sex [a]			
Male	55 (38.7%)	87 (61.3%)	142 (73.6%)
Female	18 (35.3%)	33 (64.7%)	51 (26.4%)
Total	73 (37.8%)	120 (62.2%)	193 (100.0%)
Ethnicity [b]			
Non-Aboriginal	37 (52.9%)	33 (47.1%)	70 (36.3%)
Aboriginal	36 (29.3%)	87 (70.7%)	123 (63.7%)
Total	73 (37.8%)	120 (62.2%)	193 (100.0%)

Note. [a] χ^2 (1) = 0.189, p =.66, *ns*. [b] χ^2 (1) = 10.555, p = .001.

The recidivism rate for the total sample was 62.2%. The mean length of follow-up for the total sample was 644.35 days (*SD* = 292.75) and ranged from 16 to 1215 days.

A number of factors contributed to the variability in length of follow up including date of and age at index conviction and recidivism status. Recidivists had a significantly longer mean length of follow-up than non-recidivists ($M_{\text{recidivists}}$ = 718.90, $SD_{\text{recidivists}}$ = 277.10 days and $M_{\text{non-recidivists}}$ = 521.79, $SD_{\text{non-recidivists}}$ = 277.73 days, respectively; t (191) = -4.79, $p < .001$) which is to be expected as recidivism is cumulative over time.

LSI-SK total scores were correlated with recidivism for the total sample, Aboriginal and non-Aboriginal subsamples, and male and female offenders. The results are presented in Table 3.6. For the total sample, there was a significant correlation between LSI-SK total score and recidivism, $r = .40$, $p < .001$. Higher total LSI-SK scores were associated with an increased risk of recidivism. There were also significant correlations between LSI-SK total score and recidivism for Aboriginal ($r = .25$, $p = .006$), non-Aboriginal ($r = .51$, $p < .001$), male ($r = .40$, $p < .001$), and female offenders ($r = .40$, $p = .004$).

Table 3.6. Correlations between LSI-SK and Recidivism

	n	Correlation between LSI-SK Total Score and Recidivism *r*	Correlation between LSI-SK Risk Level and Recidivism γ
Total sample	193	.40***	.36***
Sex			
Male	142	.40***	.36***
Female	51	.40**	.34**
Ethnicity			
Non-Aboriginal	70	.51***	.45***
Aboriginal	123	.25**	.23**

Note. **$p < .01$. ***$p < .001$.

As recidivists had a significantly larger mean length of follow up than non-recidivists, LSI-SK total score and length of follow up were correlated to assess whether length of follow up may have contributed to the relationship between LSI-SK total score and recidivism. There was no significant correlation between LSI-SK total score and length of follow up, $r = .008$. $p = .92$ so the relationship between LSI-SK total score and recidivism was not related to variations in length of follow up. Length of follow up, however, was positively correlated with recidivism ($r = .33$, $p < .001$). In addition, a *t*-test was conducted to examine whether length of follow up differed between Aboriginal and non-Aboriginal offenders. There was a marginally significant difference, $t\ (123.57) = -1.88$, $p = .063$, where Aboriginal offenders were followed for a longer length of time than non-Aboriginal offenders ($M_{\text{Aboriginal}} = 675.46$, $SD_{\text{Aboriginal}} = 270.10$ and $M_{\text{non-Aboriginal}} = 589.67$, $SD_{\text{non-Aboriginal}} = 323.60$). As such, partial correlations were computed for the relationship between LSI-SK total score and recidivism for Aboriginal and non-Aboriginal offenders while controlling for length of follow up. The correlations between LSI-SK total score and recidivism after controlling for length of follow up for Aboriginal and non-Aboriginal offenders remained significant, $r_{\text{Aboriginal}} = .30$, $p_{\text{Aboriginal}} = .001$ and $r_{\text{non-Aboriginal}} = .45$, $p_{\text{non-Aboriginal}} < .001$.

Chi-squared analyses were conducted for recidivism and LSI-SK risk levels for the total sample and Non-Aboriginal, Aboriginal, male, and female subsamples. Proportions of recidivists according to risk levels are presented in Figure 3.3. For the total sample, there was a significant relationship between recidivism and risk level, $\chi^2\ (3) = 32.15$, $p < .001$.

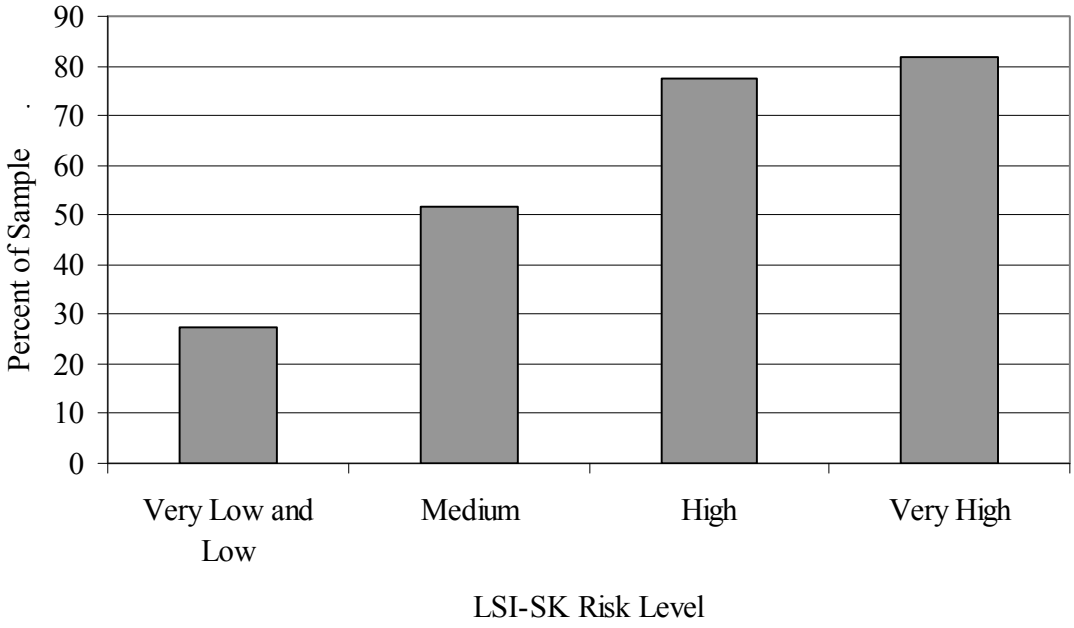

Figure 3.3 – Recidivism by LSI-SK Risk Levels for Total Sample

Proportions of recidivists according to ethnicity and sex are presented in Figures 3.4 and 3.6, respectively. There was a significant relationship between risk level and recidivism for Non-Aboriginal offenders [χ^2 (3) = 18.80, $p < .001$], Aboriginal offenders [χ^2 (3) = 12.37, $p = .006$], male offenders [χ^2 (3) = 24.22, $p < .001$], and female offenders [χ^2 (3) = 11.34, $p = .01$].

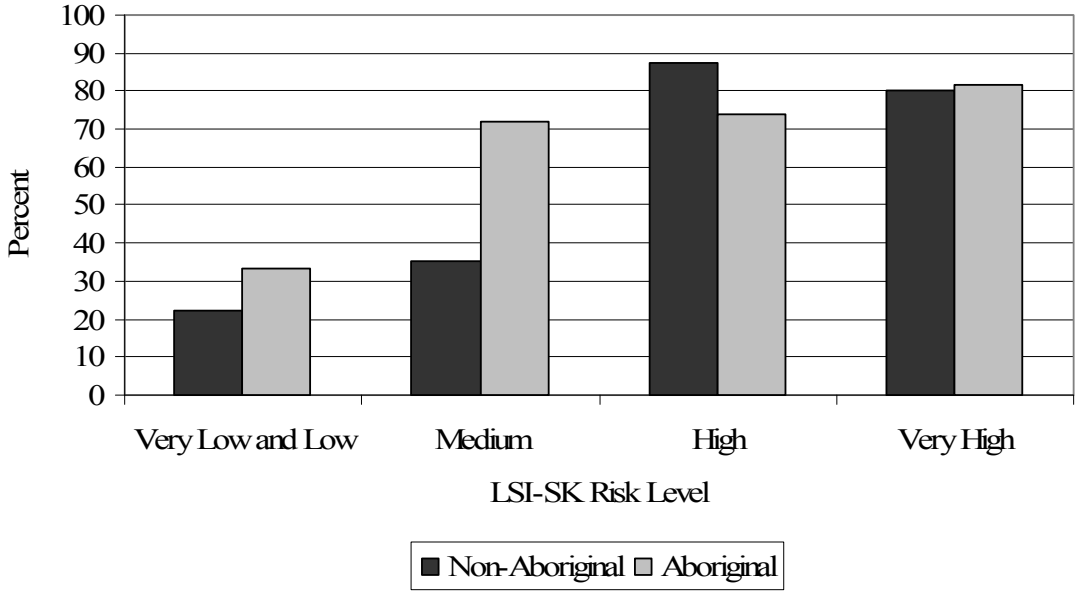

Figure 3.4 – Recidivism by LSI-SK Risk Levels for Non-Aboriginal and Aboriginal Offenders

A two-way ANOVA was conducted to examine the effects of ethnicity and risk level on recidivism. There was a significant main effect of risk level, F (3, 185) = 11.17, $p < .001$ and no significant main effect of ethnicity, F (1, 185) = 1.32, $p = .25$, *ns*. Post hoc analyses using Tukey's honestly significant difference (HSD) test found significant mean differences between the collapsed very low and low risk level and the high and very high risk levels ($p < .001$ in both comparisons). The mean difference between the very low and low risk level and medium risk level was marginally significant ($p = .057$). High and very high risk offenders significantly differed from medium risk offenders ($p = .009$ and $p = .008$) but were not significantly different from one another ($p = .963$, *ns*). A summary of the means for each risk level is presented in Table 3.7.

Table 3.7. Recidivism by Risk Level

Risk Level	*n*	Recidivism [*M* (*SD*)]
Very low and low	33	.27 (.45) [a]
Medium	56	.52 (.50) [a]
High	66	.77 (.42) [b]
Very high	38	.62 (.49) [b]

Notes. There was a significant effect of risk level on recidivism, F (3, 185) = 11.17, $p <$ .001. [a] and [b] denote significant differences using Tukey's HSD test.

There was also a significant ethnicity by risk level interaction on recidivism, F (3, 185) = 2.88, p = .037. As can be seen in Figure 3.4, for medium risk offenders, a substantially larger proportion of Aboriginal offenders recidivated than non-Aboriginal offenders. One potential explanation for the disproportionately higher recidivism rate for medium risk Aboriginal offenders than non-Aboriginal offenders was differences in length of follow up. If the length of follow up systematically differed between medium risk Aboriginal and non-Aboriginal offenders, the difference in recidivism rates between medium risk Aboriginal and non-Aboriginal may have been due to a methodological artifact rather than actual differences in recidivism rates.

In order to examine whether the interaction between risk level and ethnicity on recidivism was due to differences in length of follow-up, an ANCOVA was conducted with length of follow-up as a covariate. The main effect of risk level remained significant, F (3, 184) = 10.71, $p < .001$ but the interaction was no longer significant, F (3, 184) = 0.97, p = .41 (see Figure 3.5). As can be seen in Figure 3.5, the difference in recidivism rates for medium risk Aboriginal and non-Aboriginal offenders was reduced after controlling for length of follow-up (especially when compared with the results in Figure 3.4).

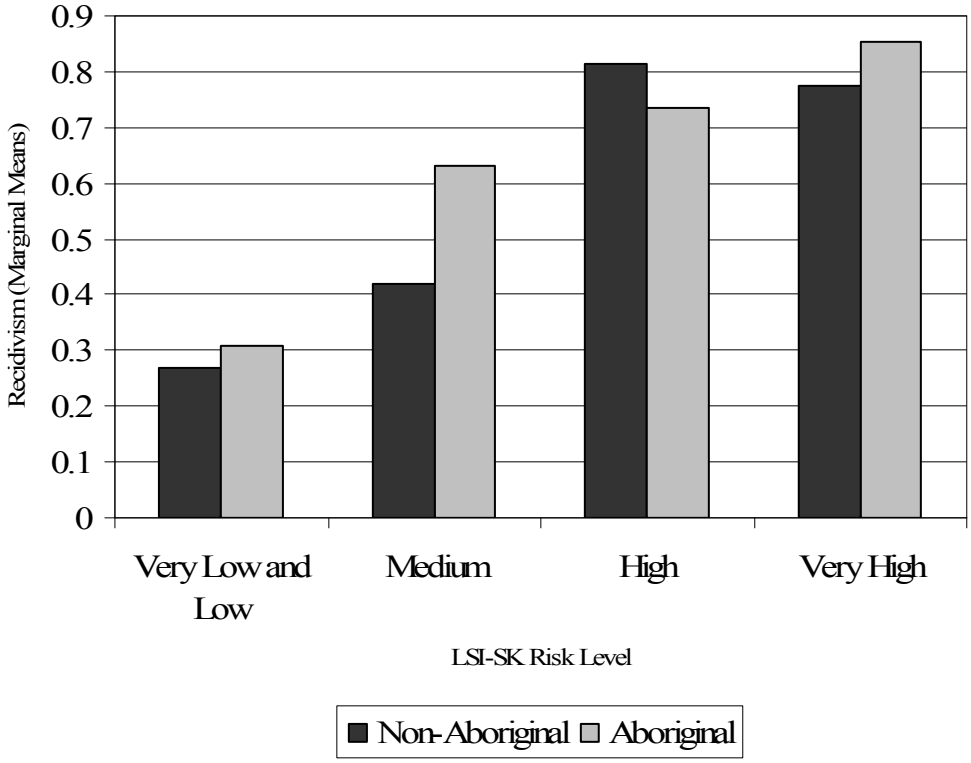

Figure 3.5 – Recidivism by LSI-SK Risk Levels for Non-Aboriginal and Aboriginal Offenders Controlling for Length of Follow Up

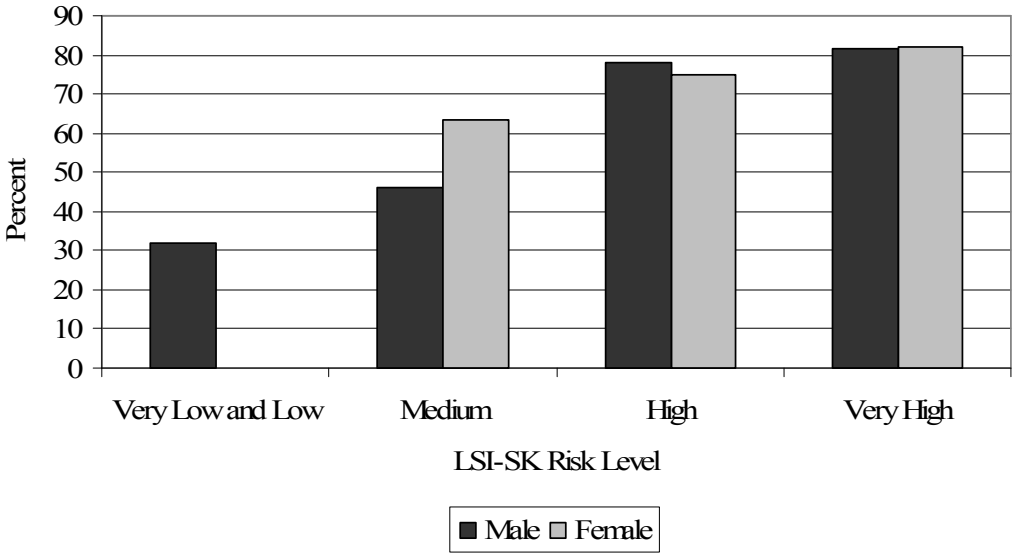

Figure 3.6 – Recidivism by LSI-SK Risk Levels for Male and Female Offenders

A two-way ANOVA was conducted for sex and risk level on recidivism (see Figure 3.6). There was a significant effect of risk level, F (3, 185) = 10.11, $p < .001$, which is not surprising given the results from the previous ANOVA for risk level and ethnicity but no significant main effect of sex, F (1, 185) = 0.29, $p = .59$, *ns*, and no significant interaction between sex and risk level, F (3, 185) = 1.36, $p = .26$, *ns*.

The correlations between recidivism and subscale scores are presented in Table 3.8. The correlations between the subscale scores and recidivism were significant for seven of the subscales; as the total and subscale scores increased, the risk of recidivism also increased. The correlation between substance abuse subscale score and recidivism was marginally significant.

Table 3.8. Correlation between Subscale Scores and Recidivism

Subscale	*r*	*p*-value
Criminal History	.41***	< .000
Education/Employment	.22**	.002
Family Circumstances & Parenting	.21**	.003
Leisure/Recreation	.30***	< .000
Companions	.29***	< .000
Procriminal Attitude/Orientation	.32***	< .000
Substance Abuse	.14	.053
Antisocial Pattern	.40***	< .000

Note. **$p < .01$. ***$p < .001$.

Case Management

Case management data were coded from a variety of sources and Table 3.9 presents the proportion of cases coded from CSPs, PSRs, LSI-SK assessment reports, and progress notes. CSPs were the source of case management information for 67.4% of the cases and PSRs were used in 21.2% of the cases. In three cases, case plans were absent and discussions with the youth workers who supervised these cases indicated that case

plans were not needed as the young offenders did not have any needs. Appropriateness was still scored for these cases as they appropriately received no interventions.

Table 3.9. Source from which Case Management Data were Obtained

Source	*n* (%)
Community safety plan (CSP)	130 (67.4%)
Presentence report (PSR)	41 (21.2%)
LSI-SK assessment report	10 (5.2%)
Progress notes	9 (4.7%)
Missing [a]	3 (1.6%)
Total	193 (100%)

Note. [a] = no case plan information as LSI scores indicate no need

CSPs were rated on 17 completeness items (refer to Appendix), each scored dichotomously (0 = no; 1 = yes). A completeness score was created by summing across the 17 completeness items for each offender such that the maximum completeness score was 17. The distribution of completeness scores is presented in Figure 3.7. There were 115 valid scores, ranging from 9 to 16. The mean completeness score was 13.59 (*SD* = 1.51) while the median score was 14.00. The test of kurtosis was not significant ($z = 0.89$. *ns*) but there was significant skewness, $z = -3.51$, $p < .001$, indicating that the completeness scores were concentrated on the higher end of the scale (59.1% of the scores fell between 14 and 16). There was no significant correlation between completeness scores and appropriateness scores, ($r = .014$, $p = .88$, *ns*), LSI-SK total score ($r = -.044$, $p = .64$, *ns*), and recidivism ($r = -.091$, $p = .34$, *ns*). As completeness scores were not available for 78 cases (40.4% of total sample) and since completeness was not related to any of the key variables, no other analyses were conducted with this variable. Furthermore, the research questions related to the completeness variable (i.e.,

high risk offenders who had more complete CSPs would be less likely to recidivate than high risk offenders who with incomplete CSPs while completeness would not affect the recidivism rates of low risk offenders) could not be tested and completeness was used only for descriptive purposes.

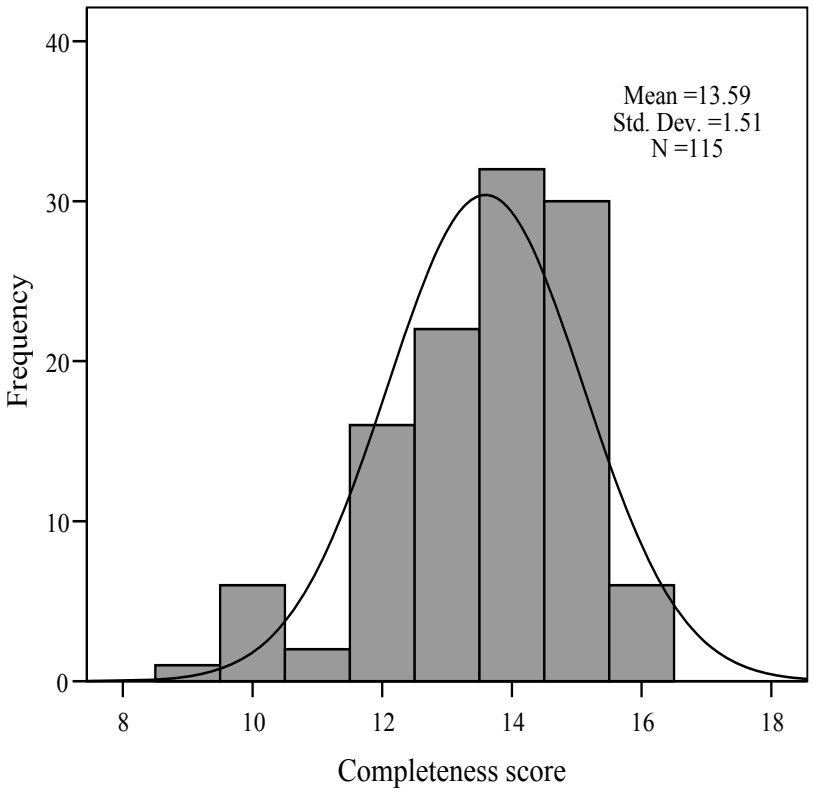

Figure 3.7 – Distribution of Completeness Score

Risk and Supervision Level

Data on minimum frequency of supervision were missing in 20 of the cases (10.4% of total sample of 193). Minimum frequency of supervision was collapsed into four categories (i.e., no contact to biweekly, weekly, twice a week, and every 48 hours or

more frequent) and the proportion of cases within each category is presented in Figure 3.8. There was a significant correlation between minimum frequency of supervision and LSI-SK total scores, $r = .66$, $p < .001$. Frequency of supervision increased as LSI-SK total scores increased, indicating that supervision was adhering to the risk principle.

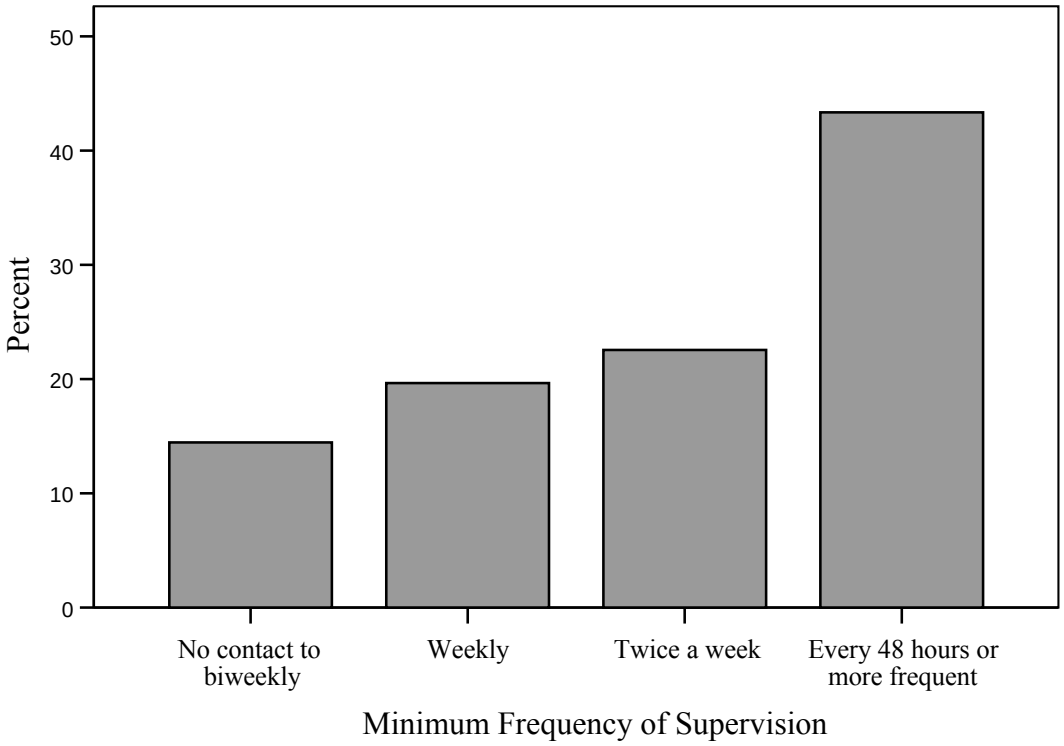

Figure 3.8 – Minimum Frequency of Supervision

There was a significant relationship between minimum frequency of supervision and risk level, χ^2 (9) = 160.45, $p < .001$, although assumptions were violated because of low cell frequencies. Table 3.10 presents frequency of supervision according to risk levels.

Table 3.10. Minimum Frequency of Supervision by LSI-SK Risk Level

	Risk level *n* (%)			
Minimum Frequency of Contact	Very Low and Low	Medium	High	Very High
No contact to biweekly	20 (76.9%)	4 (7.5%)	1 (1.7%)	0 (0%)
Weekly	1 (3.8%)	17 (32.1%)	14 (23.7%)	2 (5.7%)
Twice a week	3 (11.5%)	26 (49.1%)	8 (13.6%)	2 (5.7%)
At least every 48 hours	2 (7.7%)	6 (11.3%)	36 (61.0%)	31 (88.6%)
Total	26 (100.0%)	53 (100.0%)	59 (100.0%)	35 (100.0%)

Note. Assumptions violated because of low cell frequencies. χ^2 (9) = 160.45, $p < .001$.

Of the 26 young offenders who scored in the low or very low risk levels, 76.9% were supervised at the lowest level (i.e., no contact to biweekly). Medium risk cases were most often supervised twice a week (49.1%); consistent with the supervision standards set by CPS) although 32.1% were being supervised at the weekly frequency. High risk cases were most often supervised every 48 hours or more frequently (61.0%), consistent with the supervision standards for high risk cases. Very high risk cases were most often supervised every 48 hours or more frequently (88.6%), again consistent with the supervision standards set out by CSP.

Needs and Interventions

Descriptive Statistics. A criminogenic need was identified as an area of need if the LSI-SK subscale score ranked in the medium or high risk categories. This was compared to whether or not youth workers identified the area as a need on the case plan and whether the youth worker identified an intervention to address that particular criminogenic need. A series of chi-squared analyses were conducted to examine the match between LSI-SK subscale score-identified need (i.e., cases where subscale scores were medium risk or higher) with youth worker's identification of the criminogenic need

as a need and whether there was a corresponding intervention to address the criminogenic need. As can be seen in Table 3.11, for criminal history, there was a significant relationship between subscale score-identified need[1] and youth worker-identified need, χ^2 (1) = 49.89, $p < .001$. Criminal history was indicated as a need by its subscale score (i.e., score fell in the medium risk category or higher) in 46 instances (24.1% of total sample). Of these 46 instances, the youth workers correctly identified criminal history as a need on the case plan in 42 instances (91.3%). Criminal history was not indicated as a need according to the subscale score in 145 cases (75.9% of total sample) but was incorrectly identified as a need by the youth worker in 46 instances (31.7%).

Table 3.11. Criminal History: Match between LSI-SK Subscale Score-Identified Need and Youth Worker-Identified Need and Interventions

	LSI subscale score indicated need (i.e., medium or higher risk) Frequency [*n* (%)]		
	No	Yes	Total
Criminal history was identified as an area of need by youth worker on the case plan [a]			
No	99 (68.3%)	4 (8.7%)	103 (53.9%)
Yes	46 (31.7%)	42 (91.3%)	88 (46.1%)
Total	145 (75.9%)	46 (24.1%)	191 (100.0%)
Intervention identified by youth worker to address criminal history [b]			
No	100 (69.0%)	9 (18.8%)	109 (56.5%)
Yes	45 (31.0%)	39 (81.3%)	84 (43.5%)
Total	145 (75.1%)	48 (24.9%)	193 (100.0%)

Note. [a] χ^2 (1) = 49.89, $p < .001$. [b] χ^2 (1) = 36.99, $p < .001$.

[1] Technically, criminal history is not a criminogenic need because it is a static risk factor. That is, it does not change with interventions. However, the score on the criminal history subscale may have influenced decisions related to the level of supervision as well as the type of youth worker who was assigned to supervise the youth (i.e., responsivity). Since criminal history had important implications for case management practices, it was included among the needs variables.

Results from the chi-squared analysis of the LSI-SK subscale score-identified need and youth-worker identified intervention for criminal history are presented in Table 3.11. Whether or not the youth worker identified an intervention to address criminal history was significantly related to the subscale score, χ^2 (1) = 36.99, $p < .001$. Subscale scores were in the medium or higher risk levels in 48 instances (24.9% of total sample) and the youth worker identified an intervention for criminal history in 39 of these cases (81.3%). Criminal history was not an area of need according to the subscale score in 145 instances (75.1%) although youth workers identified an intervention in 45 of these cases (31.0%). Similar cross-tabulations were conducted for each of the remaining seven criminogenic needs.

Table 3.12. Education/Employment: Match between LSI-SK Subscale Score-Identified Need and Youth Worker-Identified Need and Intervention

	LSI subscale score indicated need (i.e., medium or higher risk) Frequency [*n* (%)]		
	No	Yes	Total
Education/employment was identified as an area of need by youth worker on the case plan [a]			
No	79 (47.6%)	0 (0.0%)	79 (41.4%)
Yes	87 (52.4%)	25 (100.0%)	112 (58.6%)
Total	166 (86.9%)	25 (13.1%)	191 (100.0%)
Intervention identified by youth worker to address education/employment [b]			
No	36 (21.4%)	2 (8.0%) [c]	38 (19.7%)
Yes	132 (78.6%)	23 (92.0%)	155 (80.3%)
Total	168 (87.0%)	25 (13.0%)	193 (100.0%)

Note. [a] χ^2 (1) = 20.29, $p < .001$. [b] χ^2 (1) = 2.48, $p = .12$, *ns*. [c] expected cell count < 5.

Youth workers' identification of education/employment as an area of need was significantly related to the subscale score, χ^2 (1) = 20.29, $p < .001$ (see Table 3.12). The

subscale scores of 25 young offenders were medium risk or higher and education/employment was identified as an area of need in all 25 cases. However, when the subscale scores were very low or low risk, youth workers incorrectly identified education/employment as a need in 52.4% of the cases. Identification of an intervention to address education/employment, however, was not related to its subscale score, χ^2 (1) = 2.48, p = .12. Interventions to address education/employment were identified in 155 cases (80.3% of the total sample) although the subscale score was medium risk or higher in only 25 cases. Over 78% of the offenders whose subscale score was very low or low risk had an intervention to address education/employment.

Bonta et al. (2004) found that case planning was often driven by the presence of court orders. As such, a follow-up chi-squared analysis was conducted to examine the relationship between youth worker identified-intervention to address education/employment and having a court-ordered condition to attend school, day program, or work. There was a significant relationship between having a court ordered condition to attend school, day program, or work and identification of an intervention to address education/employment, χ^2 (1) = 4.63, p = .031 (refer to Table 3.13). Interventions were more frequently in place when there was a court-ordered condition to attend school, day program, or work.

Table 3.13. Chi-Squared Analysis of Intervention for Education/Employment and Court-Ordered Condition to Attend School, Day Program, or Work.

Intervention identified by youth worker to address education/employment	Court-ordered condition to attend school, day program, or work [*n* (%)]		
	No	Yes	Row total
No	17 (29.3%)	21 (15.8%)	38 (19.9%)
Yes	41 (70.7%)	112 (84.2%)	153 (80.1%)
Column total	58 (30.4%)	133 (69.6)%	191 (100.0%)

Note. χ^2 (1) = 4.63, p = .031

Table 3.14. Family Circumstances and Parenting: Match between LSI-SK Subscale Score-Identified Need and Youth Worker-Identified Need and Intervention

	LSI Subscale score indicated need (i.e., medium or higher risk) Frequency [*n* (%)]		
	No	Yes	Total
Family circumstances & parenting was identified as an area of need by youth worker on the case plan [a]			
No	111 (81.0%)	2 (3.7%)	113 (59.2%)
Yes	26 (19.0%)	52 (96.3%)	78 (40.8%)
Total	137 (71.7%)	54 (28.3%)	191 (100.0%)
Intervention identified by youth worker to address family circumstances & parenting [b]			
No	107 (77.5%)	16 (29.1%)	123 (63.7%)
Yes	31 (22.5%)	39 (70.9%)	70 (36.3%)
Total	138 (71.5%)	55 (28.5%)	193 (100.0%)

Note. [a] χ^2 (1) = 95.81, p < .001. [b] χ^2 (1) = 39.93, p < .001.

For family circumstances and parenting (see Table 3.14), the identification of this area as a need and the identification of an intervention to address this criminogenic need were significantly related to the subscale scores [χ^2 (1) = 95.81, p < .001 and χ^2 (1) = 39.93, p < .001, respectively). Fifty-five young offenders scored in the medium risk or

high levels on this subscale and 39 (70.9%) had a corresponding intervention. One-hundred and thirty-eight young offenders scored in the very low or low risk levels and 107 (77.5%) appropriately did not have a corresponding intervention.

Table 3.15. Leisure/Recreation: Match between LSI-SK Subscale Score-Identified Need and Youth Worker-Identified Need and Intervention

	LSI Subscale score indicated need (i.e., medium or higher risk) Frequency [*n* (%)]		
	No	Yes	Total
Leisure/recreation was identified as an area of need by youth worker on the case plan [a]			
No	63 (87.5%)	3 (2.5%)	66 (34.6%)
Yes	9 (12.5%)	116 (97.5%)	125 (65.4%)
Total	72 (37.7%)	119 (62.3%)	191 (100.0%)
Intervention identified by youth worker to address leisure/recreation [b]			
No	42 (58.3%)	28 (23.1%)	70 (36.3%)
Yes	30 (41.7%)	93 (76.9%)	123 (63.7%)
Total	72 (37.3%)	121 (62.7%)	193 (100.0%)

Note. [a] χ^2 (1) = 143.25, $p < .001$. [b] χ^2 (1) = 24.19, $p < .001$.

For leisure/recreation (see Table 3.15), the identification of this area as a need and the identification of an intervention to address this criminogenic need were significantly related to the subscale scores [χ^2 (1) = 143.25, $p < .001$ and χ^2 (1) = 24.19, $p < .001$, respectively). One-hundred and twenty-one young offenders had medium risk or higher subscale scores and almost 77% had a corresponding intervention to address the need. Subscale scores were very low or low risk for 72 offender but interventions were identified for 30 of these young offenders (41.7%).

For the companions subscale (Table 3.16), identification of the area as a need was significantly related to the corresponding subscale score, χ^2 (1) = 42.17, $p < .001$, but

identification of intervention was not, χ^2 (1) = 0.812, p = .37, *ns*. As in the results for the education/employment subscale, a chi-squared analysis was conducted to examine the relationship between having a no contact court order and presence of an intervention to address the area of companions (Table 3.17). There was no significant relationship between the two variables, χ^2 (1) = 1.97, p = .16, *ns*. Thus, identification of an intervention to address the area of companions appears to be unrelated to the subscale score and a court-ordered no contact condition.

Table 3.16. Companions: Match between LSI-SK Subscale Score-Identified Need and Youth Worker-Identified Need and Intervention

	LSI Subscale score indicated need (i.e., medium or higher risk) Frequency [*n* (%)]		
	No	Yes	Total
Companions was identified as an area of need by youth worker on the case plan [a]			
No	53 (44.9%)	1 (1.4%)	54 (28.3%)
Yes	65 (55.1%)	72 (98.6%)	137 (71.7%)
Total	118 (61.8%)	73 (38.2%)	191 (100.0%)
Intervention identified by youth worker to address companions [b]			
No	61 (51.3%)	33 (44.6%)	94 (48.7%)
Yes	58 (48.7%)	41 (55.4%)	99 (51.3%)
Total	119 (61.7%)	74 (38.3%)	193 (100.0%)

Note. [a] χ^2 (1) = 42.17, $p < .001$. [b] χ^2 (1) = 0.81, p = .37, *ns*.

Table 3.17. Chi-Squared Analysis of Interventions for Companions and Presence of Court-Ordered No Contact Condition

Intervention identified by youth worker to address companions	Court-ordered no contact condition [*n* (%)]		
	No	Yes	Row total
No	44 (54.3%)	48 (44.0%)	92 (48.4%)
Yes	37 (45.7%)	61 (56.0%)	98 (51.6%)
Column total	81 (42.6%)	109 (57.4%)	190 (100.0%

Note. χ^2 (1) = 1.97, p = .16, *ns*.

A chi-squared analysis was conducted to examine the relationship between identification of an intervention to address companions and office of supervision (i.e., Saskatoon or Regina) as there is a systematic difference in service delivery between the two sites as it relates to companions. Regina contracts service providers to assist young offenders in areas such as transportation and leisure/recreation whereas service providers are not utilized in Saskatoon. In addition, the service providers may also be identified to provide mentorship to the young offender. As such, young offenders in Regina may be more likely to have an intervention to address companions because the young offenders are being assigned service providers. The results do not support this prediction: there was no significant relationship between office of supervision and having an intervention to address companions, χ^2 (1) = 0.72, p = .40, *ns* (Table 3.18).

Table 3.18. Chi-Squared Analysis between Office of Supervision and Identification of an Intervention to Address Companions

	Office of Supervision *n* (%)		
	Saskatoon	Regina	Total
Intervention identified by youth worker to address companions			
No	56 (51.4%)	38 (45.2%)	94 (48.7%)
Yes	53 (48.6%)	46 (54.8%)	99 (51.3%)
Total	109 (56.5%)	84 (43.5%)	193 (100.0%)

Note. χ^2 (1) = 0.72, p = .40, *ns*.

For the procriminal attitude/orientation subscale, identification of the area as a need and the identification of an intervention to address the need were both significantly related to the subscale score [χ^2 (1) = 90.69, $p < .001$ and χ^2 (1) = 15.62, $p < .001$, respectively; see Table 3.19]. Subscale scores were medium risk or higher in 44 cases but

only 20 of these cases had a corresponding intervention. Subscales scores were very low or low risk in 149 cases and there were (appropriately) no interventions identified in 124 of these cases.

Table 3.19. Procriminal Attitude/Orientation: Match between LSI-SK Subscale Score-Identified Need and Youth Worker-Identified Need and Intervention

	LSI Subscale score indicated need (i.e., medium or higher risk) Frequency [*n* (%)]		
	No	Yes	Total
Procriminal attitude/ orientation was identified as an area of need by youth worker on the case plan [a]			
No	123 (83.1%)	2 (4.7%)	125 (65.4%)
Yes	25 (16.9%)	41 (95.3%)	66 (34.6%)
Total	148 (77.5%)	43 (22.5%)	191 (100.0%)
Intervention identified by youth worker to address procriminal attitude/ orientation [b]			
No	124 (83.2%)	24 (54.5%)	148 (76.7%)
Yes	25 (16.8%)	20 (45.5%)	45 (23.3%)
Total	149 (77.2%)	44 (22.8%)	193 (100.0%)

Note. [a] χ^2 (1) = 90.69, $p < .001$. [b] χ^2 (1) = 15.62, $p < .001$.

For the substance abuse subscale, the identification of the area as a need and the identification of an intervention to address the need were both significantly related to the subscale score [χ^2 (1) = 46.44, $p < .001$ and χ^2 (1) = 38.59, $p < .001$, respectively; see Table 3.20]. Subscale scores were medium risk or higher in 74 cases and 71 of these cases (95.9%) had an intervention to address substance abuse. However, although subscale scores were very low or low risk for 119 cases, 64 (53.8%) cases had an intervention identified to address substance abuse.

Table 3.20. Substance Abuse: Match between LSI-SK Subscale Score-Identified Need and Youth Worker-Identified Need and Intervention

	LSI Subscale score indicated need (i.e., medium or higher risk) Frequency [*n* (%)]		
	No	Yes	Total
Substance abuse was identified as an area of need by youth worker on the case plan [a]			
No	60 (50.4%)	2 (2.8%)	62 (32.5%)
Yes	59 (49.6%)	70 (97.2%)	129 (67.5%)
Total	119 (62.3%)	72 (37.7%)	191 (100.0%)
Intervention identified by youth worker to address substance abuse [b]			
No	55 (46.2%)	3 (4.1%)	58 (30.1%)
Yes	64 (53.8%)	71 (95.9%)	135 (69.9%)
Total	119 (61.7%)	74 (38.3%)	193 (100.0%)

Note. [a] χ^2 (1) = 46.44, $p < .001$. [b] χ^2 (1) = 38.59, $p < .001$.

Table 3.21. Antisocial Pattern: Match between LSI-SK Subscale Score-Identified Need and Youth Worker-Identified Need and Intervention

	LSI Subscale score indicated need (i.e., medium or higher risk) Frequency [*n* (%)]		
	No	Yes	Total
Antisocial pattern was identified as an area of need by youth worker on the case plan [a]			
No	72 (88.9%)	24 (21.8%)	96 (50.3%)
Yes	9 (11.1%)	86 (78.2%)	95 (49.7%)
Total	81 (42.4%)	110 (57.6%)	191 (100.0%)
Intervention identified by youth worker to address antisocial pattern [b]			
No	63 (77.8%)	60 (53.6%)	123 (63.7%)
Yes	18 (22.2%)	52 (46.4%)	70 (36.3%)
Total	81 (42.0%)	112 (58.0%)	193 (100.0%)

Note. [a] χ^2 (1) = 83.94, $p < .001$. [b] χ^2 (1) = 11.92, $p = .001$.

Identification of antisocial pattern as a need and having a corresponding intervention were significantly related to the subscale scores [χ^2 (1) = 83.94 $p < .001$ and

χ^2 (1) = 11.92, p = .001, respectively; see Table 3.21]. Subscale scores were very low or low risk in 81 cases, 63 (77.8%) of which appropriately did not have a corresponding intervention. However, subscale scores were medium risk or higher in 112 cases but interventions were identified in only 52 (46.4%) cases.

Overall, whether or not the youth worker identified an area as a need was significantly related to the LSI-SK subscale scores for all eight subscales. For all eight criminogenic needs, when the subscale score ranked as medium risk or higher, the youth worker identified the subscale as a need in the majority of the instances (from 78.2% for antisocial pattern to 100.0% for education/employment). However, youth workers also tended to identify areas as needs when the subscale score ranked as very low or low risk. Youth workers over-identified needs in the categories of education/employment (52.4% of cases that did not score medium risk or higher on the subscale scores were identified by the youth worker as having a need), companions (55.1%), and substance abuse (49.6%). Youth workers correctly-classified from 68.3% (criminal history) to 88.9% (antisocial pattern) of the cases as not being needs for the remaining five subscales.

Youth workers' identification of interventions on case plans was significantly related to LSI-SK subscale scores for all but two subscales. For education/employment and companions, whether or not the youth worker identified an intervention to address the need was unrelated to LSI-SK subscales scores. Interventions were identified to address education/employment in 155 cases (80.3% of total sample) although education/employment subscale scores were ranked medium risk or higher in only 25 cases (13.1% of 191). Similarly, interventions to address companions were identified by

the youth worker in 99 cases (51.3% of total sample) although subscale scores ranked in medium or higher risk categories in only 74 cases (38.3% of 191).

Appropriateness of Interventions. The distribution of appropriateness scores is presented in Figure 3.9. The mean appropriateness score was 5.01 (*SD* = 1.54). Skewness and kurtosis were not significant ($z_{skewness}$ = -0.79, *ns*, $z_{kurtosis}$ = -0.79, *ns*).

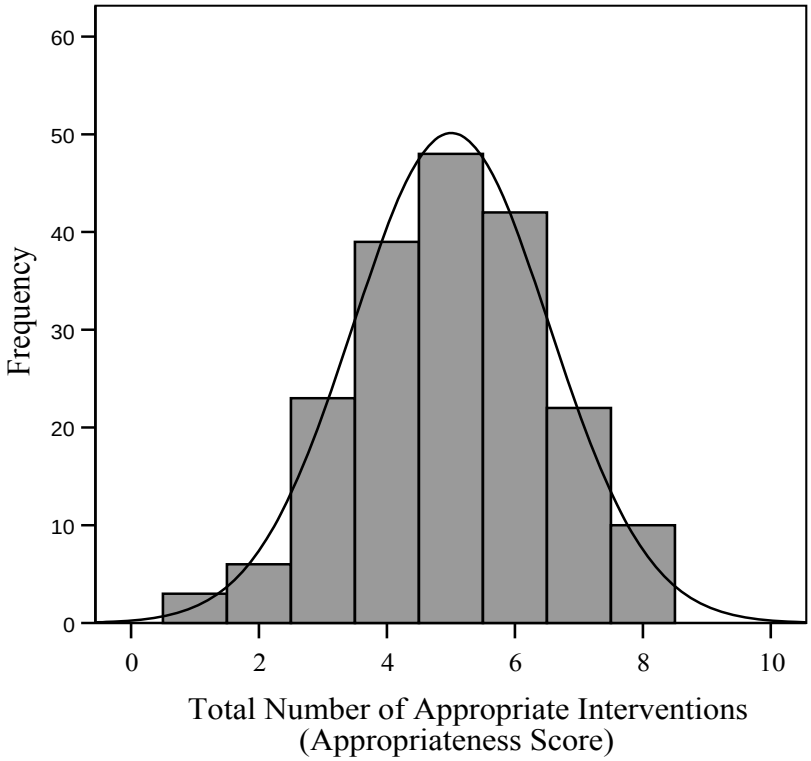

Figure 3.9 – Distribution of Appropriateness Score

Inappropriate interventions were divided into over treatment (presence of an intervention for an area that scored as very low or low risk) and under treatment (absence of an intervention for an area that scored as medium risk or higher) scores and they are presented in Figures 3.10 and 3.11, respectively.

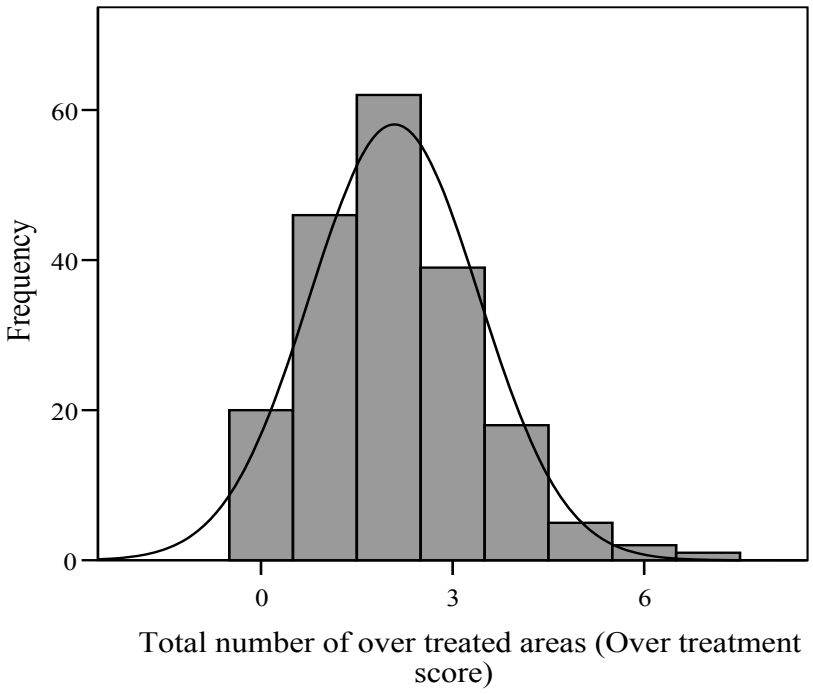

Figure 3.10 – Distribution of Over Treatment Score

The mean number of areas being over treated was 2.09 (*SD* = 1.33). There was no significant kurtosis ($z_{kurtosis}$ = 1.82, *ns*) although the distribution was positively skewed ($z_{skewness}$ = 3.53, $p < .001$). The mean number of under treated areas was 0.91 (*SD* = 1.14). Similar to the distribution of over treatment scores, the distribution of the under treatment scores was significantly positively skewed ($z_{skewness}$ = 6.82, $p < .001$); test of kurtosis was not significant ($z_{kurtosis}$ = 1.95, *ns* at $p = .001$). Table 3.22 summarizes the proportion of appropriate and inappropriate (over and under treatment) interventions for each of the eight needs.

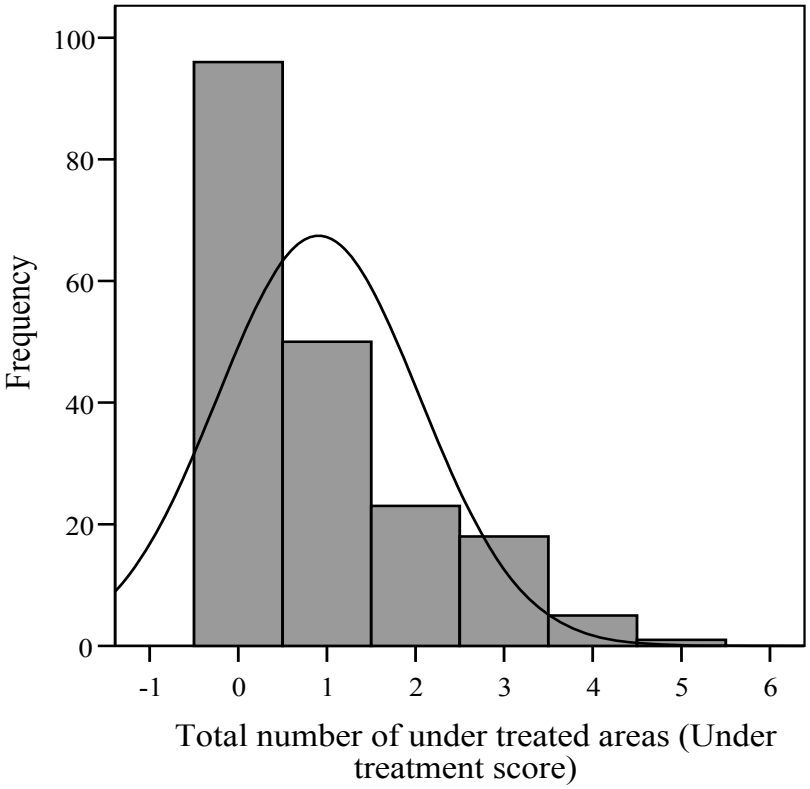

Figure 3.11 – Distribution of Under Treatment Scores

Table 3.22. Appropriateness According to Need Area

	Frequency [*n* (%)]				
				Inappropriate Intervention	
Need area	Subscale scored medium risk or higher	Intervention Identified by Youth Worker	Appropriate Intervention [a]	Over treatment	Under treatment
Criminal History	48 (24.9%)	84 (43.5%)	139 (72.0%)	45 (23.3%)	9 (4.7%)
Education/Employment	25 (13.1%)	155 (80.3%)	59 (30.6%)	132 (68.4%)	2 (1.0%)
Family Circumstances & Parenting	55 (28.5%)	70 (36.3%)	146 (75.6%)	31 (16.1%)	16 (8.3%)
Leisure/Recreation	121 (62.7%)	123 (63.7%)	135 (69.9%)	30 (15.5%)	28 (14.5%)
Companions	74 (38.3%)	99 (51.3%)	102 (52.8%)	58 (30.1%)	33 (17.1%)
Procriminal Attitude/orientation	44 (22.8%)	45 (23.3%)	144 (74.6%)	25 (13.0%)	24 (12.4%)
Substance Abuse	74 (38.3%)	135 (69.9%)	126 (65.3%)	64 (33.2%)	3 (1.6%)
Antisocial Pattern	112 (58.0%)	70 (36.3%)	115 (59.6%)	18 (9.3%)	60 (31.1%)

Note. [a] An intervention is scored as appropriate if the subscale score is medium risk or higher and an intervention has been identified, or the subscale score is low or very low risk and the youth worker has not identified an intervention.

Consistent with the chi-squared analyses of subscale score-identified needs and youth worker-identified interventions, education/employment the most over-treated area (68.4% of the cases). Antisocial pattern was the most frequently under-treated area (31.1%) although it is the second most common area of need identified using the subscale score. This may be due to the fact that there is no single treatment available to target antisocial pattern.

Appropriateness and Recidivism. Across all risk levels, there was a significant correlation between appropriateness and recidivism, $r = -.214$, $p = .003$. When examined separately at each risk level, the correlation between appropriateness and recidivism was significant for the high risk cases only ($r = -.295$, $p = .016$; refer to Table 3.23).

Table 3.23. Correlation between Appropriateness and Recidivism

Risk levels	*n*	*M*(*SD*)	Range	*r*	*p*-value
Overall	193	5.01 (1.54)	1-8	-.214**	.003
Very low and low	33	5.64 (1.88)	1-8	-.027	.883
Medium	56	5.38 (1.18)	3-8	.034	.802
High	66	4.50 (1.54)	1-7	-.295*	.016
Very high	38	4.79 (1.36)	2-7	-.125	.454

Note. * $p < .05$, ** $p < .01$.

There was also a significant correlation between total number of appropriately identified needs and recidivism, $r = -.201$, $p = .005$ although this may be due to the high correlation between total number of appropriately identified needs and total appropriate interventions, $r = .405$, $p < .001$. There is no reason to expect risk of recidivism to reduce by the identification of needs alone; rather, it is whether there is an intervention in place to address the identified risk that should be related to recidivism. Indeed, the correlation between appropriately identified needs and recidivism was no longer

significant when appropriateness score (i.e., number of appropriate interventions) was partialled out, r = -.13, p = .07, *ns*.

Over treatment and under treatment scores were also correlated with recidivism and the results are presented in Tables 3.24 and 3.25, respectively. There was no significant correlation between over treatment scores and recidivism either overall (r = .003, p = .962, *ns*) or at the individual risk levels. There was a significant relationship between under treatment score and recidivism across risk levels (r = .283, p < .001); as the number of untreated needs increased, the risk of recidivism also increased. There was no significant correlation, however, at the individual risk levels. Over treatment and under treatment scores were significantly correlated as well, r = - .23, p = .001.

Table 3.24. Correlation between Over Treatment Scores and Recidivism

Risk levels	*n*	*M*(*SD*)	Range	*r*	*p*-value
Overall	193	2.09 (1.33)	0-7	.003	.962
Very low and low	33	2.33 (1.88)	0-7	.037	.839
Medium	56	2.36 (1.17)	0-5	.020	.884
High	66	2.20 (1.13)	0-6	.193	.121
Very high	38	1.29 (0.98)	0-4	.142	.396

Note. None of the correlations were significant at p = .05.

Table 3.25. Correlation between Under Treatment Scores and Recidivism

Risk levels	*n*	*M*(*SD*)	Range	*r*	*p*-value
Overall	193	0.91 (1.14)	0-5	.283***	< .001
Very low and low	33	0.03 (0.17)	0-1	-.108	.549
Medium	56	0.27 (0.49)	0-2	-.131	.335
High	66	1.30 (1.14)	0-4	.210	.091
Very high	38	1.92 (1.22)	0-5	.025	.880

Note. ***p < .001

Risk levels were then further collapsed into two groups: lower risk group (i.e., very low to medium risk cases) and higher risk group (i.e., high to very high risk cases).

Mean appropriateness, over treatment, and under treatment scores were compared between the two groups and the results are presented in Table 3.26. Mean appropriateness and over treatment scores were significantly higher for the lower risk group than the higher risk group [t (191) = 4.06, $p < .001$, and t (167) = 2.51, $p < .05$, respectively]. For under treatment scores, however, the higher risk group had a significantly lower mean under treatment score than the lower risk group [t (131) = -10.75, $p < .001$].

Table 3.26. Mean Appropriateness, Over Treatment, and Under Treatment Scores for Dichotomized Risk Groups

	Group *M*(*SD*)			
	Lower risk (n = 89)	Higher risk (n = 104)	*t*	*df*
Appropriateness Score	5.47 (1.48)	4.61 (1.48)	4.06***	191 [a]
Over Treatment Score	2.35 (1.46)	1.87 (1.16)	2.51*	167 [b]
Under Treatment Score	0.18 (0.42)	1.53 (1.20)	-10.75***	131 [b]

Note. Appropriate *t*-statistic and *df* are reported based on whether or not equality of variance assumption is violated. [a] Equality of variance assumption not violated. [b] Does not assume equality of variance. *$p < .05$. ***$p < .001$.

Responsivity

Interventions to address specific responsivity factors were identified in 38 cases (19.7% of total sample size). Of this group, one responsivity factor was addressed in 27 cases (71.1% of 38), two responsivity factors in 10 cases (26.3%), and three responsivity factors in one case (2.6%) for a total of 50 specific responsivity factors. The frequency of each type of specific responsivity factor addressed is presented in Table 3.27 Aboriginal culture was the most commonly addressed specific responsivity factor (38.0% of the total number of responsivity factors). Responsivity was then dichotomized

(0 = did not address responsivity factors and 1 = addressed responsivity factors) and then correlated with recidivism. There was a significant relationship between responsivity and recidivism, $r = .20$, $p = .006$; young offenders whose case plans addressed responsivity factors were more likely to recidivate than offenders whose case plans did not address specific responsivity factors. It was speculated that this correlation may have been due to ethnicity as 28 (73.7%) of the 38 young offenders whose case plans addressed responsivity factors were Aboriginal and as 19 of the 38 cases identified Aboriginal culture as the specific responsivity factor. However, the partial correlation between responsivity and recidivism remained significant after controlling for ethnicity ($r = .18$, $p = .012$).

Table 3.27. Specific Responsivity Factors Addressed

Specific Responsivity Factor	Frequency [*n* (% of total number of responsivity factors addressed)]
Attention Deficit and Hyperactivity	9 (18.0%)
Fetal Alcohol Syndrome	6 (12.0%)
Mental Health Issues	6 (12.0%)
Educational Special Needs/Learning Disability	10 (20.0%)
Aboriginal Culture	19 (38.0%)
Total	50 (100.0%)

Note. Total number of cases that addressed specific responsivity factors was 38.

It was then speculated that the positive correlation between responsivity and recidivism was due to risk and the relationship between LSI-SK total score and recidivism. LSI-SK total score correlated significantly with responsivity ($r = .18$, $p = .015$) indicating that higher risk offenders were more likely to have interventions to address responsivity factors. The partial correlation between responsivity and recidivism was still significant after controlling for LSI-SK total score ($r = .14$, $p = .049$) but was

no longer significant after controlling for both LSI-SK total score and ethnicity (r = .14, p = .056). After controlling for familywise error, neither partial correlation was significant. It is important, however, to interpret these findings with caution as they are likely to be unreliable as 80% of the sample did not document interventions to address specific responsivity factors and it is unclear whether this represents cases where responsivity factors were not addressed or poor documentation.

Predicting Recidivism using Logistic Regression

Four sets of sequential logistic regression analyses were conducted to examine whether appropriate and inappropriate (both over and under) treatment significantly predict recidivism. As recidivism was related to ethnicity but not sex (see Table 3.5), ethnicity was entered as a covariate in block 1 for all the analyses but sex was not. Furthermore, since recidivists have a significantly longer length of follow up than non-recidivists, length of follow-up was also entered as a covariate in block 1. The correlation matrix for all the variables that were entered into logistic regression analyses is presented in Table 3.28.

Table 3.28. Correlation Matrix of all the Variables Entered into Logistic Regression Analyses

		Recidivism	LSI-SK total score	Appropriateness score	Over treatment score	Under treatment score	Ethnicity	Length of Follow Up
Recidivism (0=no; 1=yes)	*r*	1.00	.397	-.214	.003	.283	.234	.327
	p-value		.000	.003	.962	.000	.001	.000
LSI-SK total score	*r*		1.000	-.228	-.266	.615	.365	.008
	p-value			.001	.000	.000	.000	.917
Appropriateness score	*r*			1.000	-.691	-.543	-.138	-.059
	p-value				.000	.000	.055	.412
Over treatment score	*r*				1.000	-.232	-.056	.047
	p-value					.001	.442	.520
Under treatment score	*r*					1.000	.250	.026
	p-value						.000	.722
Ethnicity (0=non-Aboriginal; 1=Aboriginal)	*r*						1.000	.141
	p-value							.050
Length of follow-up	*r*							1.000
	p-value							

Note. $N = 193$.

Analysis 1

In the first sequential logistic regression analysis, ethnicity and length of follow up were entered in block 1 and appropriateness score was entered in block 2. The overall model was significant, -2 Log likelihood = 220.82, χ^2 (3) = 35.17, $p < .001$ (Cox and Snell $R^2 = .167$, Nagelkerke $R^2 = .227$) and the Hosmer and Lemeshow Test (Hosmer & Lemeshow, 2000) was not significant, therefore failing to reject the null hypothesis that the model is a good fit [χ^2 (8) = 5.04, $p = .75$, *ns*]. Table 3.29 presents results for the predictors. Appropriateness was a significant predictor of recidivism after controlling for ethnicity and length of follow-up ($\beta = -0.28$, $W = 6.20$, $p = .01$). For every one unit increase in appropriateness score, the odds of recidivism decreased by 24% (odds ratio of 0.76).

Table 3.29. Logistic Regression Analysis 1: Appropriateness Score Predicting Recidivism after Controlling for Ethnicity and Length of Follow Up

							95% Confidence Interval for Odds Ratio	
Predictors	β	*SE*	Wald (*W*)	*df*	*p*-value	Odds Ratio	Lower	Upper
Ethnicity	-0.79	0.34	5.58	1	.018	0.45	0.23	0.87
Length of follow up	.002	.001	16.19	1	.000	1.00	1.00	1.00
Appropriateness Score	-0.28	0.11	6.20	1	.013	0.76	0.61	0.94
Constant	.783	.69	1.29	1	.256	2.19		

Note. -2 Log likelihood = 220.82, $\chi^2(3) = 35.17$, $p < .001$. Cox & Snell $R^2 = .167$, Nagelkerke $R^2 = .227$. Hosmer and Lemeshow Test: χ^2 (8) = 5.04, $p = .75$.

Analysis 2

In the second sequential logistic regression analysis, LSI-SK total score was added to block 2 of Model 1. The overall model was significant, -2 Log likelihood = 195.00, χ^2 (4) = 61.00, $p < .001$ (Cox and Snell $R^2 = .271$, Nagelkerke $R^2 = .369$). LSI-SK total score significantly improved prediction of recidivism [χ^2 (1) = 25.82, $p < .001$], and the Hosmer and Lemeshow Test was not significant [χ^2 (8) = 9.50, $p = .302$, *ns*], therefore failing to reject the null hypothesis that the model is a good fit. Appropriateness score was no longer a significant predictor (β = -0.19, $W = 2.56$, $p = .109$, *ns*; see Table 3.30) but LSI-SK total score was a significant (β = 0.11, $W = 21.51$, $p < .001$) predictor of recidivism. A one-unit increase in LSI-SK total score was associated with an 11% increase in odds of recidivating while controlling for appropriateness score. One explanation as to why appropriateness was no longer significant in this model may be due to the correlation between appropriateness and LSI-SK total score ($r = -.23$, $p = .001$).

Table 3.30. Logistic Regression Analysis 2: Predicting Recidivism with Appropriateness and LSI-SK Total Scores after Controlling for Ethnicity and Length of Follow Up

							95% Confidence Interval for Odds Ratio	
Predictors	β	*SE*	Wald (*W*)	*df*	*p*-value	Odds Ratio	Lower	Upper
Ethnicity	-0.14	0.39	.120	1	.729	.87	.406	1.88
Length of follow up	0.00	0.00	19.90	1	.000	1.00	1.00	1.00
Appropriateness Score	-0.19	0.12	2.56	1	.109	0.82	0.65	1.04
LSI-SK Total Score	0.11	0.02	21.51	1	.000	1.11	1.06	1.17
Constant	-2.48	1.02	5.95	1	.015	0.08		

Note. -2 Log likelihood = 195.00, $\chi^2(4) = 61.00$, $p < .001$. Cox & Snell $R^2 = .271$, Nagelkerke $R^2 = .369$. . Hosmer and Lemeshow Test: χ^2 (8) = 9.50, $p = .302$, *ns*.

Analysis 3

In the third sequential logistic regression analysis, ethnicity and length of follow up were entered in block 1 and over treatment and under treatment scores were entered in block 2. The overall model was significant, -2 Log likelihood = 212.78, χ^2 (4) = 43.21, p < .001 (Cox and Snell R^2 = .201, Nagelkerke R^2 = .273). The Hosmer and Lemeshow Test was not significant, therefore failing to reject the null hypothesis that the model is a good fit [χ^2 (8) = 5.57, p = .70, *ns*]. Under treatment was a significant predictor of recidivism (β = 0.65, W = 12.04, p = .001; see Table 3.31) but over treatment was not (β = 0.09, W = 0.50, p = .48, *ns*). For each untreated criminogenic need, the odds of recidivating increased by 91% (odds ratio of 1.91).

Table 3.31. Logistic Regression Analysis 3: Predicting Recidivism with Under Treatment and Over Treatment Scores after Controlling for Ethnicity and Length of Follow Up

							95% Confidence Interval for Odds Ratio	
Predictors	β	*SE*	Wald (*W*)	*df*	*p*-value	Odds Ratio	Lower	Upper
Ethnicity	-0.56	0.35	2.48	1	.116	0.57	0.29	1.15
Length of Follow Up	0.00	0.00	17.41	1	.000	1.00	1.00	1.00
Over Treatment Score	0.09	0.13	0.50	1	.480	1.10	0.85	1.41
Under Treatment Score	0.65	0.19	12.04	1	.001	1.91	1.33	2.75
Constant	-1.58	0.55	8.16	1	.004	0.21		

Note. -2 Log likelihood = 212.78, χ^2(4) = 43.21, p < .001. Cox & Snell R^2 = .201, Nagelkerke R^2 = .273. Hosmer and Lemeshow Test: χ^2 (8) = 5.57, p = .70.

Analysis 4

In the fourth sequential logistic regression analysis, ethnicity and length of follow up were entered in block 1 and LSI-SK total, over treatment, and under treatment scores were entered at the same time in block 2. The overall model was significant, -2 Log likelihood = 194.98, χ^2 (5) = 61.01, $p < .001$ (Cox and Snell $R^2 = .271$, Nagelkerke $R^2 = .369$). The addition of LSI-SK score into the model significantly improved prediction of recidivism [χ^2 (1) = 17.80, $p < .001$] and the Hosmer and Lemeshow Test was not significant [χ^2 (8) = 9.53, $p = .30$, *ns*] therefore failing to reject the null hypothesis that the model is a good fit. Controlling for over and under treatment scores, LSI-SK total score was a significant predictor of recidivism ($\beta = 0.11$, $W = 15.17$, $p < .001$; see Table 3.32). A one-unit increase in LSI-SK total score is associated with a 12% increase in odds of recidivating. Over treatment and under treatment scores were not significant predictors of recidivism after controlling for the other variables. One reason why under treatment scores was not predictive in this model may be because under treatment was highly correlated with LSI-SK total score ($r = .615$, $p < .001$).

Table 3.32. Logistic Regression Analysis 4: Predicting Recidivism with Over Treatment, Under Treatment, and LSI-SK Total Scores after Controlling for Ethnicity

							Confidence Interval for Odds Ratio	
Predictors	β	*SE*	Wald (*W*)	*df*	*p*-value	Odds Ratio	Lower	Upper
Ethnicity	-0.14	0.39	0.12	1	.727	0.87	0.41	1.88
Length of Follow Up	0.00	0.00	19.90	1	.000	1.00	1.00	1.00
LSI-SK Total Score	0.11	0.03	15.17	1	.000	1.12	1.06	1.18
Over Treatment Score	0.20	0.14	2.02	1	.155	1.22	0.93	1.62
Under Treatment Score	0.17	0.21	0.65	1	.420	1.19	0.78	1.80
Constant	-4.07	0.91	19.89	1	.000	0.02		

Note. -2 Log likelihood = 194.98, $\chi^2(5) = 61.01$, $p < .001$. Cox & Snell $R^2 = .271$, Nagelkerke $R^2 = .369$. Hosmer and Lemeshow Test: $\chi^2\ (8) = 9.53$, $p = .30$.

CHAPTER 4
DISCUSSION

Risk assessment and case management are two important aspects of young offender corrections and reintegration. Evaluating the extent to which case management practices are guided by risk assessment is important because the impact of the risk assessment instrument cannot be adequately assessed if the instrument is not being applied as fully intended. The present study examined the extent to which the Level of Service Inventory – Saskatchewan Youth Edition (LSI-SK; Andrews et al., 2001) is being used in the preparation of young offenders' community safety plans (CSPs) in Saskatoon and Regina and whether adherence to the principles of risk, need, and responsivity are related to recidivism.

Before discussing any of the results, it is important to consider the issue of missing data. The sampling timeframe for Saskatoon and Regina consisted of 347 young offenders. However, relevant data were available for only 193 cases (56%). Some of the reasons why the 152 cases were not coded included the following: the young offender received a new sentence (while serving the custodial portion of his/her index sentence) that prevented him/her from starting the probation order within the research timeframe; the youth had reoffended and was actively being supervised in another jurisdiction so that the file was not available; no risk/need assessment was completed within 12-months of the index conviction; no case plan information; and files could not be located. The latter

three scenarios are causes for concern from an implementation perspective. If an LSI-SK had not been completed, how were the young offenders being managed in the community? If case plans were developed without a risk/need assessment, on what basis were the case plans derived? Lastly, the issue of missing files identifies record keeping as an area of concern that need to be addressed by Corrections and Public Safety

With 44% of the young offenders in the sampling timeframe excluded, one should be concerned about the possibility of systematic differences between cases that had relevant file material and those that did not. The present study did not examine differences in LSI-SK total scores and recidivism between the 193 cases that were coded and the 154 cases that could not be coded. The characteristics of the sample in the present study, however, were similar to the sample in the study by Rector and colleagues (2007) in terms of proportions of male and female and non-Aboriginal and Aboriginal offenders as well as mean LSI-SK total scores. Nonetheless, the results of the present study should be interpreted with caution as the sample included in the study may differ systematically from the youth who were excluded.

Predictive Validity

The first purpose of the study was to assess the predictive validity of the LSI-SK on a sample of young offenders who were serving a probation order. The overall recidivism rate was 62.2% and there was no difference in proportions of recidivists and non-recidivists between the Saskatoon and Regina samples. It was hypothesized that LSI-SK total scores would correlate positively with recidivism and the results support this hypothesis. The correlation between LSI-SK total score and recidivism for the present study was .40, indicating that higher LSI-SK scores are associated with increased risk of recidivism. This was indeed the case as recidivism rates increased across increasing risk

levels (27.3%, 51.8%, 77.3%, and 81.6% for the very low and low, medium, high, and very high risk levels, respectively). Furthermore, significant positive correlations between LSI-SK total score and recidivism were found for male and female offenders and non-Aboriginal and Aboriginal offenders.

There was also an unexpected interaction between risk level and ethnicity on recidivism where the recidivism rate for medium risk Aboriginal offenders was disproportionately higher than the recidivism rate for medium risk non-Aboriginal offenders. After inspection, it was found that the interaction was due to significantly longer length of follow-up for medium risk Aboriginal offenders than medium risk non-Aboriginal offenders. That is, the unexpected finding was due to a methodological artifact rather than an actual difference in recidivism rates. Future research will need to consider and control for such methodological variables as failure to do so may lead to inappropriate interpretations related to, for examples, differential prosecution practices and the validity of the risk/need assessment tool with different samples of offenders.

How do the results from the present study compare with the two Saskatchewan young offender LSI studies? Rector et al. (2007) reported an overall recidivism rate of 49% in their study of 872 young offenders, which had an average follow-up of 503 days (range from 202 to 984 days). Rector and colleagues examined all young offenders adjudicated in the province of Saskatchewan from 2003 through 2005 who could be followed for at least six months in the community. Their sample included youth sentenced to custody, conditional supervision, community supervision, deferred custody, probation, and conditional discharges. The present study, however, examined young offenders in Saskatoon and Regina who received probation orders that commenced

between March 1, 2004 and March 1, 2005. The sample in the present study would have been subsumed within the sample in the Rector et al. study. The present study, however, had a longer mean length of follow up than the Rector et al. study which allows more time to detect recidivism. Furthermore, Rector and colleagues used a new sentence as their recidivism measure and did not exclude pseudo recidivism whereas the present study used new conviction (e.g., the sentence may have been time served) and excluded pseudo-recidivism. Nonetheless, the correlation between LSI-SK total score and recidivism were similar (.40 in the present study and .38 in the Rector et al. study).

Gossner and Wormith (2007) examined the predictive validity of the YLS/CMI on a Saskatchewan sample of young offenders supervised in North Battleford and Saskatoon. Gossner and Wormith reported a reconviction rate of 32% over a 6-month follow-up. They had a smaller sample size of 94 young offenders and shorter follow-up length than the present study. Furthermore, similar to the Rector et al. (2007), Gossner and Wormith did not differentiate between pseudo-recidivism and true recidivism. Nonetheless, they reported correlation of .36 between YLS/CMI total score and recidivism, which was similar to both the correlation found by Rector et al. (2007) and the present study.

Case Management

Completeness

Two categories of process variables were assessed in the present study. The first category examined was the completeness of the CSPs. Each CSP was scored on 17 quality assurance items that were adapted from Program Development and Therapeutic Services, Young Offender Programs (2005; see Appendix). Completeness scores were derived by summing across the 17 quality assurance items with higher scores

representing more complete CSPs. Generally, the CSPs were fairly complete with a median score of 14 of a possible 17. It was predicted that completeness would be positively correlated with appropriateness under the assumptions that completeness would be an indicator of the youth workers' probation practice and that youth workers who generate more complete case plans would be more likely to demonstrate appropriate case management practices. This prediction was not supported as completeness was not related to appropriateness. Moreover, completeness was not related to LSI-SK total score or recidivism. Therefore, the completeness score was used for descriptive purposes only and not entered into the models to predict recidivism. It is, however, interesting to note from a management perspective that the completeness of the CSP is not related to the "quality" of the CSP with respect to appropriateness. Corrections and Public Safety may want to consider revising their quality assurance measures.

A number of factors may have contributed to the lack of relationship between completeness and appropriateness. The quality assurance items on which the completeness score was derived assessed whether or not specific characteristics of the CSP were present (e.g., is there a valid LSI-SK on file, was the overall risk level reported) but there was no measure to assess the accuracy of the CSP contents. The items were given a score of 1 (i.e., yes) if it was present regardless of accuracy. Furthermore, the quality assurance items did not explore criminogenic needs (except whether or not they have been identified on the CSP, regardless of appropriateness) whereas the appropriateness scores focus exclusively on the eight criminogenic needs on the LSI-SK. Furthermore, the items were developed to assess completeness for quality assurance purposes and not to measure appropriateness or predict recidivism. It was therefore not

surprising that completeness was not related to LSI-SK total score or recidivism (especially since the latter two variables were significantly correlated).

Adherence to Risk, Need, and Responsivity

Risk. The second set of process variables assessed the extent to which case plans adhered to the principles of risk, need, and responsivity vis-à-vis the LSI-SK total and subscale scores. The significant correlation of .66 between the LSI-SK total score and minimum frequency of supervision indicates that supervision level was consistent with the risk principle: high risk offenders were supervised at high intensity levels whereas low risk offenders were supervised at low intensity levels. The "high" correlation as defined by Cohen (1977) between risk and supervision levels likely reflects the policy and supervision standards that have been implemented by CPS to ensure that supervision is appropriate to the young offender's risk. The minimum frequency of supervision by risk level contingency table (Table 3.8) provide further evidence that supervision standards are being implemented fairly well. For instance, almost 90% of the very high risk offenders were supervised at least every 48 hours while approximately 77% of the very low and low risk offenders were supervised at the lowest frequency category (i.e., no contact to biweekly).

The supervision of medium and high risk offenders, however, was less clear-cut. Whereas almost half of medium risk offenders were supervised at the twice weekly frequency (consistent with supervision standards for medium risk offenders), 32% were supervised weekly while 11% were supervised at least every 48 hours. With high risk offenders, 61% were supervised at least every 48 hours (as specified by the supervision standards for high risk offenders), 24% and 14% were supervised at the weekly and twice a week frequencies, respectively. A number of reasons may contribute to these findings

including the heterogeneity of the offenders who score in the medium and high risk categories, attention to responsivity factors, and availability of other supports in the community to provide supervision. The risk/need profiles of medium and high risk offenders may vary considerably. Offenders may score in the medium or high risk levels overall without any one subscale scoring in the medium risk or higher levels. Accordingly, their supervision may need to vary as a function of their risk/need profiles. Further analyses are required to examine cases for which risk level and supervision are inconsistent to determine the cause of the inconsistencies and whether or not they are justified. This might involve interviews with youth workers on a case by case basis, perhaps using a prospective research design to minimize errors due to recall. Alternatively, youth workers may be asked to document instances and rationale for instances where they have chosen to override the supervision standards.

Presence of and attention to specific responsivity factors may result in additional supervision than would be prescribed by the overall risk category. For example, a low functioning youth may require more intense structure to his/her supervision although he/she scored in the lower risk categories. Finally, the supervision standards dictate that supervision contacts may be carried out by the youth worker or other responsible persons. Although the supervision levels on the case plans may have been lower than prescribed by the supervision standards, other support persons may have been utilized (e.g., police to complete curfew checks or school counselor) such that the overall supervision level met the level specified by the supervision standards. Overall, however, it appears that supervision level was adhering to the risk principle.

Specific Responsivity. Specific responsivity was attended to in only 38 cases but it was not possible to determine whether this statistic represents over, under, or appropriate attention to specific responsivity factors. Nonetheless, a significant correlation was found between responsivity and recidivism although it was in the opposite direction as hypothesized. Attention to specific responsivity factors was associated with an increased risk of recidivism but the correlation was no longer significant after controlling for ethnicity and LSI-SK total scores. However, the correlation between responsivity and recidivism is likely to be unreliable as files for 80% of the sample did not explicitly address specific responsivity factors. This may be due to inconsistent documentation as the CSP does not have a section devoted to interventions for responsivity factors (as it does for interventions to address criminogenic needs).

Needs. A series of chi-squared analyses were conducted to assess the extent to which the LSI-SK subscale scores were used in the identification of areas of need for each offender and subsequently, the identification of interventions to address the needs. For all eight criminogenic needs, youth workers' identification of the subscale as a need was significantly related to the subscale scores. Generally, when the subscales scores were medium risk or higher, youth workers also identified the area as a need. However, youth workers also identified areas as needs when the subscale scores were very low or low risk (i.e., over-identify needs) approximately half the time for education/employment, companions, and substance abuse. Youth workers' identification of interventions was also significantly related to the subscale scores for six of the criminogenic needs: when subscale scores were medium risk or higher, more often than not, youth workers identified interventions to address the needs. The exceptions were

education/employment and companions where identification of interventions was unrelated to subscales scores (these findings will be discussed shortly). Similar to the results for the identification of needs, youth workers tended to identify interventions for subscales that scored in the very low or low risk levels.

Over treatment has been conceptualized as a type of inappropriate treatment in the present study. It may, however, also be conceptualized as provision of interventions to areas of strengths to build upon strengths as a responsivity strategy or a proactive approach to case management to ensure that areas that are very low or low risk do not become areas of needs (R. Bereti, personal communication, June 28, 2007). The lack of relationship between recidivism and over treatment indicates that there was no negative effect of over treating young offenders. However, while over treatment was not related to recidivism, under treatment was positively correlated with recidivism. Given limited resources and the finding that under treatment is related to increased risk of recidivism and appropriate interventions is related to reductions in odds of recidivating, the first priority for case management should be to ensure that identified areas of need are addressed.

Education/employment and companions were the two criminogenic needs in which the youth workers' identification of an intervention was unrelated to the subscale scores. These two subscales were ranked first and third in terms of over treatment (education/employment and companions, respectively). Approximately 80% of the sample had an intervention to address education/employment although only 13% of the sample scored medium risk or higher on the subscale. These results, however, are not particularly surprising since 70% of the sample had a court order to attend school, day

program, or work. In addition, education is compulsory for youth under 16 years of age and 41.5% of the sample was under the age of 16 at the time of their index conviction. Attending school or being employed may offer the youth opportunities to interact with prosocial peers as well as formal supervision from responsible adults, and therefore is an intervention that simultaneously satisfies multiple areas of case management. Furthermore, attending school or work are prosocial activities that help to occupy the youth's free time. This is important because leisure/recreation was the most frequently endorsed area of need according to the subscale scores.

The lack of relationship between intervention and subscale score for companions was somewhat surprising, especially since Flores and colleagues (2004) failed to find significant relationships between interventions and subscale scores on all but the companions subscale. It was predicted that the use of service providers by the Regina probation office may have contributed to the lack of relationship between interventions and subscale scores but the chi-squared analysis found no significant relationship between office of supervision and interventions. What factors, then, would help to explain these results? As indicated earlier, youth workers may identify school attendance to address education as well as companions although companions may not have been an area of need. Conversely, youth workers may not have explicitly indicated that school attendance was used to address the companions need although that may have been the intention.

Substance abuse was the second most over treated criminogenic need. The tendency to over treat this area may be due to a relative abundance of substance abuse programs in the community causing youth workers to refer youth with even minor

problems in this area to programs. The finding of substance abuse over treatment may also be due to the cutoff score defined in the instrument, and used in the current study, to define need. While the instrument requires at least six of eight items in the substance abuse section to merit a moderate need rating, youth workers may determine that a youth with fewer endorsed items for example, at least half (four or five), merits a program referral. Issues related to the validity of the subscale cutoffs and how youth workers use the subscale scores are discussed later.

Antisocial pattern ranked as the second most frequently endorsed area of need according to the subscale scores but it was the most under treated criminogenic need. Under treatment of antisocial pattern may be due to the fact that there is no single program or intervention to address this need. Furthermore, this subscale is comprised of items from all of the other seven subscales and is therefore, by definition, multidimensional, which may further compound the difficulty in identifying appropriate treatment. Finally, the availability of resources may also contribute to this area being under treated.

Overall, contrary to the findings reported by Flores and colleagues (2004), there was evidence to suggest that youth workers in Saskatoon and Regina used the LSI-SK to inform delivery of interventions. However, the findings suggest that fine-tuning by the Corrections and Public Safety in terms of how and when to use the subscales may be necessary in order to maximize the use of scarce resources. Furthermore, for the education/employment subscale, results are similar to the results in Bonta et al. (2004) in that identification of an intervention on the case plan was related to the presence of a court-order to attend school, day program, or work. However, whereas Bonta and

colleagues suggested that "mandate driven" (p. 28) case planning may interfere with the probation officers' application of risk assessment results, adherence to court orders in Saskatchewan may facilitate the use of the LSI-SK in case management. The PSRs are ordered by provincial youth court judges and often completed by youth workers who eventually supervise the young offender in the community. Youth workers frequently provide recommendations for risk management strategies in the community (i.e., case management strategies that would be implemented) if the youth was sentenced to a community disposition. These recommendations are informed by results from LSI-SK assessments. In fact, 21% of the case management data were derived from PSRs. Moreover, youth workers often recommend court conditions in the PSRs that they feel would facilitate offender management in the PSRs. Although it is beyond the scope of the present study to speculate on judges' decision-making processes, if the recommended conditions are mandated by the courts and the conditions were designed to facilitate case management, then adherence to those conditions indirectly supports (rather than interferes with) the use of the LSI-SK in case management.

Although the results reported thus far are useful from a process evaluation perspective, the main purpose of examining the match between LSI-SK subscale scores and interventions was to examine how adherence to the need principle (i.e., delivery of interventions that are appropriate to the needs of the offender) is related to recidivism. It was hypothesized that appropriateness would be negatively associated with recidivism and the hypothesis was supported using correlations as well as logistic regression. There was a significant, negative correlation between appropriateness scores and recidivism which corresponded to a small to medium effect size (Cohen, 1977). When correlations

were repeated within each risk category, the correlation was only significant for high risk offenders. The correlation between appropriateness and recidivism for very high risk offenders was not significant although there were 66 and 38 young offenders in the high and very high risk categories, respectively. Moreover, although the correlation was not significant, it was in the predicted direction. Overall, appropriateness was a significant predictor of recidivism after controlling for ethnicity and length of follow up: for every appropriate intervention in place, the likelihood of reoffending was decreased by 24%.

Post hoc analyses were conducted to examine the relationship between over treatment (i.e., providing interventions for a criminogenic need in which the subscale score was very low or low risk) and under treatment (i.e., not providing treatment to a criminogenic need that scored medium risk or higher). There was a significant positive relationship between under treatment and recidivism while there was no significant relationship between over treatment and recidivism. These findings were echoed in the logistic regression analysis: after controlling for ethnicity and length of follow up, under treatment scores was a significant predictor of recidivism while over treatment was not. For every untreated need area, the likelihood of reoffending increased by 91%.

When LSI-SK total score was entered into the analyses predicting recidivism, appropriateness, under, and over treatment scores were no longer significant in predicting recidivism. Future studies should examine whether higher order predictors (e.g., quadratic or interaction terms) improve prediction while providing adequate fit to the data. Appropriateness may interact with other variables to predict recidivism or the relationship between appropriateness and recidivism while controlling for LSI-SK total

scores may not be linear. Without more theoretical direction, it is difficult to build models to test the relationships between appropriateness, LSI-SK total score, and recidivism.

Overall, there was evidence to suggest that the LSI-SK was used in the preparation of case management plans. Levels of supervision appear to be commensurate to overall risk level. In addition, there was evidence to suggest that youth workers were using the LSI-SK to plan and recommend interventions. Moreover, the results of the present study provide evidence to support the need principle and highlight the importance of targeting identified criminogenic needs. Responsivity, however, appears to be an area that requires further attention as specific responsivity factors were addressed in only 38 cases. It is unclear whether this is because the remaining 155 young offenders did not have specific responsivity factors that needed to be addressed or that responsivity factors were simply not attended to in these cases. Improvement in documentation of responsivity factors and the addition of a section on the case plans specifically focused on responsivity factors may help to clarify this issue in future studies.

An important factor to consider for all of the subscales is whether youth workers have a standard set of guidelines for the identification of a subscale as an area of need and subsequently, the identification of an intervention to address the need. Follow-up discussions with the manager of the quality assurance unit at CPS helped to shed light on this issue and why youth workers were generally over-identifying areas as needs. Youth workers are not trained to use the overall subscale scores, per se, but are directed to examine individual items and the number of items within each subscale (D. Carey, personal communication, July 30, 2007). Although the subscale score is derived by summing across the items within the subscale, youth workers are asked to examine the

proportion of the items endorsed by the youth rather than the overall risk level. For example, if four items under substance abuse are endorsed, youth workers may be likely to identify an intervention to address substance abuse since four items within that subscale represents half of all the items. However, a score of four on the substance abuse subscale corresponds to low risk. Therefore, while the youth worker may identify the area as a need and identify an intervention, the subscale score would indicate that the area is not a need.

It is also important to examine the extent to which the subscale risk level cutoffs are valid. The present study dichotomized the subscale scores based on the risk level cut-offs to determine whether or not the subscale is a need but the validity of this scoring depends on the validity of the cutoffs. Although subscale scores were positively correlated with recidivism (though the correlation between the substance abuse subscale score and recidivism was only marginally significant), the subscale risk level cutoffs have yet to be empirically examined. In addition, the operational definition of a need (i.e., subscale scores in the medium risk or high categories) in the present study was also somewhat arbitrary. It was necessary for analytic purposes and as the present study is an evaluation of the extent to which the LSI-SK was implemented and its relationship to recidivism, the use of the subscale cutoffs that were already in place at the time the LSI-SK was implemented was justified. However, research should examine the validity of the subscale risk level cutoffs as well as the validity of the present study's definition of need as there are implications to case management practices and research.

Limitations and Future Directions

Missing Data

The sample in the present study constituted 56% of the youth in the sampling timeframe. It was not possible to examine whether there were systematic differences between the sample in the study and the youth who were excluded due to missing relevant information. Future research should examine whether there are differences between the samples for which relevant data are and the youth who are excluded with respect to risk level, age at index sentencing, criminal history, and recidivism to name a few variables. In addition, CSPs were not available for 33% of the sample and although the present author was able to use alternate sources to extract case management information, they may not have been equivalent. PSRs were produced for judges to assist in sentencing whereas the CSPs were developed for use by the youth worker for case management purposes. Progress notes provided information about the interventions that have been delivered while the interventions listed on the CSPs were planned case management strategies (to be discussed shortly). Future research should either limit the case management data source or examine whether the data sources provide substantively different types of information and subsequently control for variations due to data source. Taken together with the limitations presented in the following pages, caution is needed when interpreting and generalizing the results from the present study.

Rater Bias

During the conceptualization of the study, the author intended to be blind to the recidivism outcome as well as the LSI-SK results while coding case management data. Unfortunately, this was not possible logistically as recidivism data were often placed at the top of the offender file and could not be overlooked. In addition, in order ensure that

the risk assessment results and case management information were collected for the appropriate sentence, it was necessary to match relevant documents to the dates of prior and subsequent sentences. Moreover, as the author encountered a number of difficulties in accessing the data, it was not feasible to have a second coder review the files. It was therefore not possible to conduct a reliability check. It was also not possible to control for rater bias as the author was fully aware of the hypotheses at the time of data collection. Future research should attempt to minimize rater bias by having a second rater or having a rater blind to the hypotheses and the outcome results review the files.

Scoring of the LSI-SK

The present study did not assess the extent to which the LSI-SK was scored accurately because the author did not have access to interview material. Although a cursory reliability check could have been performed by drawing a random sample from the cases included in the study and scoring the LSI-SK based on file information only, it would not be possible to identify the source of discrepancies in scores. Any discrepancy in LSI-SK scores between the youth workers and the author may have been due to the fact that the author did not have access to the same information that was available to the youth workers (e.g., interviews with the offender and collaterals) rather than inaccurate scoring. Instead, the author relied on Correction and Public Safety's internal standards of LSI-SK training and mastery criteria as assurance that the LSI-SK were administered, scored, and reported accurately. Corrections and Public Safety also conducts ongoing quality assurance checks to ensure that the standards are being adhered to. Failure to meet the standards may result in suspension of mastery level qualification. Nonetheless, if possible, future studies to evaluate the implementation of risk/need assessment instruments should examine the accuracy in which the instruments are being scored.

Case Management

The present study examined case plans as outlined in the CSPs, PSRs, LSI-SK reports, and progress notes. With the exception of the progress notes (used in nine cases because the other documents were not available), these documents provide an outline of the case management strategies and interventions that are planned for the young offenders. While case plans were used as an indicator of probation practices, it is important to recognize that interventions *as planned* may differ drastically from interventions *as delivered*. A diligent youth worker may be able to produce a case plan that adheres completely to risk, needs, and responsivity and corresponds directly to results of a risk/need assessment. The case plan, however, would not be effective in helping to reduce the young offender's risk to recidivate if the young offender does not comply with any of the interventions. It is therefore important to differentiate between interventions as planned and interventions as delivered. It was not possible to measure the extent to which the case plans were delivered in the present study due to logistical constraints. Although the results of the present study support the hypothesis that adherence to the need principle is related to reductions in recidivism, the effect of appropriateness was diminished when LSI-SK total scores were entered into the model predicting recidivism. Future research should explore the extent to which interventions are delivered and how it relates to recidivism as it may provide a clearer picture of how adherence to the need principle is related to reoffending.

Other important variables to consider for future research are the performance of the young offenders in treatment and changes in LSI-SK (total and subscale) scores. The present study did not examine young offenders' performance in treatment which may be a significant predictor of recidivism. Similarly, the present study did not examine case

management longitudinally. Case management data were collected near the start of the offender's index sentence. The LSI-SK scores and youth worker assessments towards the end of a sentence may be more predictive of recidivism. Moreover, these follow-up assessments may provide information about the extent to which case plans were implemented, offenders' motivation to change, and performance in programs, all of which may be related to successful reintegration in the community.

Recidivism

The definition of recidivism in the present study and access to recidivism data were also areas of concern. First, recidivism was defined as reconviction that would be captured in the Saskatchewan provincial offender files. The author did not have access to convictions that led to federal and out of province sentences. Furthermore, due to *YCJA* restrictions, follow-up data were only available up to the youths' 18th birthday or the end of their sentence, whichever was later. When youth were already 18 years of age at the time of the index conviction or if the youth turned 18 years of age while serving the young offender sentence, subsequent convictions would not have been entered into the young offender management database. For these cases, the author examined the youths' termination report to look for evidence that the individuals incurred a new charge to be adjudicated in adult courts. When file material indicated that the youth completed the sentence without incident, they were scored as non-recidivists and the follow-up end date was the last day of the young offender sentence. If file material indicated that the individual had a pending adult charge, adult conviction data were requested from Corrections and Public Safety. Thirteen cases were followed into the adult system. The difficulties in accessing recidivism data would have been overcome if the researcher was able to access recidivism data from the Canadian Police Information Centre (CPIC).

Furthermore, CPIC checks would have allowed the researcher to collect data on the number of reconvictions by the recidivism check date which could then have been analyzed to examine if and how appropriate interventions were related to the number of new convictions.

Conclusions

Risk assessment instruments are being used to inform offender management in Canada (e.g., Bonta et al., 2004, Bonta et al., 2005, Rector et al., 2007, and Schmidt et al., 2005), the United States (e.g., Flores et al., 2004) and other countries but this application of risk/need assessment instruments has not been well researched (Hannah-Moffat & Maurutto, 2003). The present study was an attempt to address this void. To the authors knowledge, only three studies have examined the implementation of risk assessment instruments (i.e., Bonta et al., Harris et al., 2004, and Flores et al.) and only one (Harris et al.) has examined the relationship between implementation and recidivism. The existing literature on appropriate treatment has examined adherence to the principles of risk, need, and responsivity at a higher-order, meta-analytic level (e.g., does treatment target criminogenic needs, yes or no; e.g., Andrews, Zinger, et al., 1990; Dowden & Andrews, 2004). In light of the limitations that were discussed earlier in this section, caution is needed when interpreting and generalizing the present findings. Nevertheless, the present study was the first Canadian study to examine whether recidivism was related to the extent to which a risk/need assessment instrument was implemented. In addition, the present study was the first to use an appropriateness index at the primary study-level and although its validity remains to be tested with future research, results from the present study provide support for the need principle, that is, intervention that address identified criminogenic needs is associated with reductions in odds of recidivating.

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APPENDIX
Quality Assurance/Completeness Items[2]

Standard Section

1. Is there a community safety plan on file?
2. Is there a valid (within 12-months of release to the community) LSI-SK on file?
3. Was the initial CSP completed within 15 days of a community based sentence?
4. Are alerts been identified?
5. Have header information been completed?

Assessment Section

6. Have the major risk areas been properly identified?
7. Is the overall risk level identified?
8. Has a sequence/offending pattern/cycle of behaviour been identified?
9. Have strength items identified in the assessment been recorded accurately in responsivity?
10. Has responsivity including items identified in Additional Concerns/Client Issues of the PSR/LSI report (sections B, F, G in the LSI scoring) been included?

Risk Management Section

11. Have court ordered probation conditions/instructions been recorded accurately?

[2] Adapted from Program Development and Therapeutic Services, Young Offender Programs (2005)

12. Is there a detailed safety agreement identified related to behaviour and high risk situations identified in the offending pattern?
13. Is there evidence of youth, family/ caregiver, or community agency involvement in developing safety agreement?
14. Does the safety agreement include positive alternatives or strategies to manage high risk situation (e.g., behavioural contracting, relapse prevention, core correctional practices)?
15. Does the supervision and reporting section include the minimum CPS supervision and reporting standards?
16. Are details provided re: who, what, where & how standards are being met?
17. Are other support/responsible persons being identified and utilized in meeting the standards?

Scoring

Each question is answered either yes (assigned a score of 1) or no (assigned a score of 0). The scores are summed across the 17 items to produce the completeness score.